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ERRC-086-09

October 15, 2009

Margaret V. Williams, ~~NPL Coordinator~~ PM
U.S. EPA, Region 8
1595 Wynkoop Street, 8EPR-SA
Denver, Colorado 80202-1129

Dear Ms. Williams:

Enclosed for your review is the *Site Investigation Analytical Results Report (ARR)* for the **5600 South 900 East Plume** (CERCLIS UTN000802664) Site located in Murray, Utah. A site investigation was performed for this site on December 2-5, 2008. The findings of this investigation indicate that tetrachloroethene (PCE), trichloroethene (TCE), cis-1,2-dichloroethene (cis-1,2-DCE), and vinyl chloride (VC) are present in the groundwater. The groundwater sample collected at the Chase Bank which is downgradient from the historic Red Hanger Cleaners detected PCE at 2300 µg/L, TCE at 97 µg/L, cis-1,2-DCE at 4700 µg/L, and VC at 150 µg/L. Cis-1,2-DCE and VC were also detected in the soil at 920 µg/L and 82 µg/L respectively. Laboratory analysis was also performed on an extra sample that was collected where leaking underground storage tanks were removed and confirms the presence of gasoline range organics at a concentration of 3300 µg/L. Groundwater and soil contamination were not detected at any of the three City of Murray municipal well sites.

Due to the extent of contamination found at the site with the sample concentrations of PCE, TCE, Cis-1,2-DCE, and VC significantly exceeding the background concentrations, additional investigation under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) authority is recommended. This sampling may include groundwater and soil sampling further downgradient from the site and possibly air sampling at the Pizza Hut where the historic Red Hanger Cleaners was once located and the Chase Bank which is located next-door and downgradient from the Pizza Hut.

After reviewing the *ARR*, please inform us of any comments or changes that need to be incorporated in the final version of the document. If you have any questions concerning the contents of the *ARR*, please contact Kim Viehweg at (801) 536-4161.

Sincerely,

Dale T. Urban, P.G.
Site Assessment Manager
Division of Environmental Response and Remediation

DTU/KV/eds

Enclosure

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SITE INVESTIGATION
ANALYTICAL RESULTS REPORT

5600 South 900 East Plume
Salt Lake County, Utah
UTN000802664

UTAH DEPARTMENT OF ENVIRONMENTAL QUALITY
Division of Environmental Response and Remediation
Prepared by: Kim Viehweg

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SITE INVESTIGATION
ANALYTICAL RESULTS REPORT

5600 South 900 East Plume
Salt Lake County, Utah
UTN000802714

Prepared by: Kim Viehweg
Utah Department of Environmental Quality
Division of Environmental Response and Remediation

Approved: Kim Viehweg Date: 5/11/09
Kim Viehweg, UDEQ Project Manager

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Approved: Margaret Williams Date: 10/28/09
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1.0 INTRODUCTION

Under authority of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, the Superfund Amendments and Reauthorization Act (SARA) of 1986, and in accordance with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), the Utah Department of Environmental Quality (UDEQ), Division of Environmental Response and Remediation (DERR) has prepared this Analytical Results Report (ARR) as part of the Site Investigation (SI) at the **5600 South 900 East Plume, UTN000802664,** (referred to as the "Site") in Murray, Salt Lake County, Utah. This SI was prepared under a cooperative agreement between DERR and the U.S. Environmental Protection Agency, Region VIII (EPA).

This report documents the field sampling procedures and presents the results from the sampling and data collection procedures. Samples were analyzed through the Contract Laboratory Program (CLP) of the EPA.

The DERR completed a Preliminary Assessment (PA) report for the 5600 South 900 East Plume Site in July 2008 and a Site Investigation Work Plan (SI) in September of 2008. Information used to prepare this ARR was obtained from the PA and SI reports as well as from additional sources cited following this document.

2.0 OBJECTIVES

Contamination of the groundwater at the Site has been documented by previous groundwater sampling that was performed in conjunction with the investigation of a leaking underground storage tank (LUST) site. The purpose of this DERR sampling event was to determine if hazardous substances continue to be present at the Site or if they have migrated, or are migrating, off-site and if they pose a threat to human health and the environment. The scope of this SI included an on-site reconnaissance, identification and evaluation of potential exposure routes, the taking of photographs, and the collection of groundwater and soil samples. The findings outlined in this report provide information to help support decisions regarding the need for further action at the Site.

The sampling event included the following objectives:

- To determine present site conditions including the presence/absence of contaminated substances;
- Assess the potential routes for contaminant migration;
- Evaluate human and environmental targets in the vicinity of the Site;
- Determine the need for additional investigation under CERCLA or other authority; and,
- Determine if the Site has potential for consideration to the National Priorities List (NPL).

3.0 BACKGROUND INFORMATION

3.1 Site Location and Description

The 5600 South 900 East Plume Site is located in Murray, Salt Lake County, Utah (Figure 1). The geographical coordinates for the Site are 40° 38' 58" north latitude and 111° 51' 57" west longitude. The elevation of the Site is approximately 4,342 feet above mean sea level.

The area immediately surrounding the Site is zoned by the City of Murray as commercial development conditional (City of Murray, 2008) and is located at a moderate to heavily trafficked intersection. There are many retail shops and businesses in the general area with a residential community just beyond this area. Additionally, the area is mostly covered with asphalt, sidewalks, and structures.

To reach the Site from Salt Lake City, travel south from I-80 West/I-215 for about 11.6 miles. Take exit 11 to US-89/State Street and turn north onto S. State Street/US-89 for 0.1 miles. Turn east onto E. Winchester Street for 1.3 miles. Turn north onto 900 East and travel for 1.2 miles. The 7-Eleven convenience store is on the northeast corner of 5600 South 900 East intersection.

3.2 Site History and Previous Work

In October 2002, SECOR International Incorporated (SECOR), a private consulting firm, removed three LUSTs, one product dispenser island, and associated piping at a 7-Eleven store located at 5585 South 900 East in Murray. Subsurface investigations were performed in connection with the LUST site. Eighteen groundwater monitoring wells were installed and shallow groundwater was encountered at approximately eight feet below ground surface (bgs) and was noted to flow west-northwest. Groundwater samples were collected and analyzed for Volatile Organic Compounds (VOCs) on December 10, 2003, December 18, 2003, February 11, 2004, and May 5, 2004. Elevated levels of tetrachloroethene (PCE), trichloroethene (TCE), cis-1,2-dichloroethene (cis-1,2-DCE), and vinyl chloride (VC) were detected during this sampling period. Specifically, PCE ranging from 2.3 to 500 micrograms per liter (µg/L), TCE ranging from 2.1 to 54 µg/L, cis-1,2-DCE ranging from 2.8 to 67 µg/L, and VC ranging from 1.6 µg/L to 11 µg/L were detected (UDEQ/DERR, 2008a). The Superfund Chemical Data Matrix (SCDM) drinking water maximum contaminant level (MCL) is 5 µg/L for PCE and TCE, 70 µg/L for cis-1,2-DCE, and 2 µg/L for VC (SCDM, 2004).

SECOR also conducted a separate subsurface investigation at Jiffy Lube located directly across the street south of the 7-Eleven store at 5601 South 900 East. PCE was detected in groundwater at a concentration of 100 µg/L at Jiffy Lube on March 11, 1999. TCE, cis-1,2-DCE and VC were not detected. SECOR concluded in their report "PCE may be present due to activities at the adjacent dry cleaners, which is proximal to the sample location that contained PCE" (UDEQ/DERR, 2008a).

The Red Hanger Cleaners currently located at 926 East 5600 South has been in operation since at least 1991. It is approximately 70 yards southeast and upgradient from the Site. Before this business relocated to its current location, the Red Hanger Cleaners was historically located at 5575 South 900 East and was in operation from 1975 through at least 1985. It was approximately 25-30 yards northwest and downgradient from the Site (Figure 2). A Pizza Hut restaurant now occupies that site.

There are two auto repair shops in close proximity to the Site. Since these two businesses use solvents in their daily business operations, they must also be considered potential sources for the chlorinated solvent plume. These businesses include the Jiffy Lube located across the street to the south of the 7-11 store and Fisher's Creative Car Care located at 929 East 5600 South which is adjacent to and east of the 7-11 store (Figure 2).

4.0 FIELD ACTIVITIES

4.1 Sample Collection

Sample collection took place at the Site from December 2 through December 5, 2008. The scope of work for the sampling event for this ARR was based on the DERR SI Work Plan approved by the EPA on September 23, 2008 (UDEQ/DERR, 2008b), and available for review in the DERR office files. An update to Table 1 in the SI Work Plan was emailed to the EPA on December 1, 2008 and is included in this report as Table 1. Sample collection and site reconnaissance was conducted by Kim Viehweg and Hans Millican of the DERR. All sampling activities were conducted in accordance with applicable State and EPA guidance and the SI work plan. Before work began on December 2, 2008, a site-specific Health and Safety Plan (HASP) was reviewed by all personnel present at the Site. The HASP establishes requirements and procedures to protect the health and safety of investigative personnel and the nearby public. On December 5, 2008, an employee of the Salt Lake Valley Health Department joined the site crew to observe the sampling event. A full review of the HASP was conducted with him prior to the beginning of work that day.

Sampling involved the collection of a total of 25 samples. These included 11 groundwater, 11 soil samples, two trip blanks, and one extra groundwater sample that was not originally part of the SI Work Plan. The extra sample was shipped via Federal Express to TestAmerica in Denver, Colorado on December 11, 2008 and analyzed for gasoline range organics (GRO). The remainder of the samples were shipped via Federal Express to A4 Scientific in The Woodlands, Texas on December 3, 2008 and December 8, 2008 and analyzed for VOCs. Samples were retained under chain-of-custody until they were shipped to the laboratory for analysis.

During the sampling event, six of the 11 sampling locations were changed due to logistical problems with the direct-push drill rig. The previous sample locations are shown in Figure 2 of this report. The actual site sample locations are shown in Figures 3, 4, and 5. The changes in locations can be seen when comparing Figure 2 with Figures 4.

The DERR Field Activities Report describes the sampling operations and is included in Appendix A along with photographs of the sampling event. Permission to sample at all sample sites was obtained by the project manager prior to sampling. Property owners or authorized personnel were asked to sign Grant of Access to Property forms and these forms are included in Appendix B. The EPA START Team's Trip Report is included in Appendix C. Sample shipping information and laboratory chain-of-custody records are included in Appendix D.

4.2 Deviations and Corrections to the Work Plan

4.2.1 Deviations from the Work Plan

- According to the SI Work Plan, samples 5600-GW-03 and 5600-SO-03 were to be collected in a grassy area in front of the Jiffy Lube automobile shop at 5601 South 900 East. Access problems for the drill rig caused this sample location to be relocated approximately 70 feet east to the easternmost border of the Jiffy Lube property in the parking lot.

- The SI Work Plan called for samples 5600-GW-02 and 5600-SO-02 to be collected in a grassy area in front of the Red Hanger Cleaners at 926 East 5600 South. Access problems for traffic driving onto the property caused this sample location to be relocated approximately 20 feet west in the same grassy area north of the store.

- An extra sample was collected in the southwest corner of the 7-11 parking lot that was not included in the SI Work Plan. The decision was made to collect this extra sample when a black oily substance with a strong petroleum odor was encountered while sampling from 8-12 feet bgs. This sample was labeled 5600-GW-13. Permission to ship this sample to the laboratory for analysis was obtained from the EPA on December 8, 2008. This sample was analyzed for GRO.

- According to the SI Work Plan, samples 5600-GW-09 and 5600-SO-09 at the Highland Dairy Well were originally to be collected in the grassy area just north of the storage tank. After drilling down to 19 feet bgs, only gravel was encountered so the decision was made to relocate the drill rig about 50 feet north and downhill towards the street. A second borehole was drilled and groundwater was encountered at 12 feet bgs.

4.2.2 Corrections to the Work Plan

One error was observed in the Site Investigation Work Plan report during the preparation of this report. Originally, the Village Cleaners was estimated to be approximately 190 yards from the Site. This error was also noted in the 5600 South 900 East Plume Preliminary Assessment. However, the actual distance should be approximately 325 yards from the Site.

4.3 Quality Assurance/Quality Control

All samples were placed into appropriate containers, labeled and sealed under chain-of-custody protocols, stored on ice in coolers, and submitted to the laboratory for analyses. All holding times were met, which is defined as the time between the date the sample was collected and the date the analysis was complete. The holding time for VOCs is 14 days (USEPA, 2007).

The Quality Assurance/Quality Control (QA/QC) samples that were collected included two trip blanks (both labeled trip blank) collected on December 2, 2008 and December 4, 2008, two field duplicate samples (5600-GW-12 and 5600-SO-12), and two MS/MSD samples (5600-GW-01 and 5600-SO-01).

The EPA's START contractor, URS Consultants, Inc., performed data validation of the analyses. The data package was reviewed according to the EPA document "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review," dated June, 2008. URS checked the accuracy of the analytical data and approximately 10-20% of the results reported in each of the samples, calibrations, and QC analyses were recalculated and verified. URS noted that the data is acceptable with qualifications noted in the review. The Data Validation Reports and Laboratory Analytical Results are included in Appendix E.

5.0 WASTE/SOURCE CHARACTERISTICS

Chlorinated solvents including PCE, TCE, cis-1,2-DCE and VC have been detected in the groundwater in the vicinity of the Site. Based on the limited data collected, the source area appears to originate primarily from the historic Red Hanger Cleaners. Lesser amounts of chlorinated solvents were also detected in the groundwater from the borehole drilled on the currently operating Red Hanger Cleaners property and from the borehole on the Jiffy Lube property.

PCE is commonly used as a solvent in the dry cleaning industry and for metal degreasing in auto repair shops. TCE, cis-1,2-DCE and VC are by-products of PCE as it breaks down and degrades. Historically, little to no oversight or guidance was provided to the dry cleaning industry for the proper handling or disposal or PCE solvents or wastes. It was a commonplace practice to discard PCE waste on the ground as a method of disposal. As late as 1968, information in "Chemical Safety Data Sheets" by the Manufacturing Chemists' Association stated PCE "may be poured on dry sand, earth, or ashes...and allowed to evaporate into the atmosphere" (Pankow and Cherry, 1996). Given the results of the analytical laboratory data from the December 2008 sampling event, these practices for the handling and disposal of PCE likely took place at the historic Red Hanger Cleaners.

Exposure to very high concentrations of PCE can cause dizziness, headaches, sleepiness, confusion, nausea, difficulty in speaking and walking, unconsciousness and death. It is a nonflammable liquid at room temperature. It evaporates easily into the air and has a

sharp, sweet odor. Most people can smell PCE when it is present in the air at a level of one part per million parts of air (1 ppm) or more, although some can smell it at lower levels. Much of the PCE that gets into water or soil evaporates into the air. Microorganisms can break down some of the PCE in soil or groundwater under rare conditions. In the air, it is broken down by sunlight into other chemicals or brought back to the soil and water by rain. PCE has not been shown to bioaccumulate in fish or other animals that live in water. The U.S. Department of Health and Human Services (DHHS) has determined that PCE may reasonably be anticipated to be a carcinogen. PCE has been shown to cause liver tumors in mice and kidney tumors in male rats (ASTDR, 1997).

TCE is a colorless liquid which is used as a solvent for cleaning metal parts and can be a byproduct of PCE biodegradation. Drinking or breathing high levels of TCE may cause nervous system effects, liver and lung damage, abnormal heartbeat, coma and possibly death. TCE is a nonflammable, colorless liquid with a somewhat sweet odor and a sweet, burning taste. It is used mainly as a solvent to remove grease from metal parts, but it is also an ingredient in adhesives, paint removers, typewriter correction fluids, and spot removers. TCE dissolves a little in water, but can remain in groundwater for a long time. It quickly evaporates from surface water, so it is commonly found as a vapor in the air. TCE evaporates less easily from the soil than from surface water and may persist in the environment by sticking to soil particles. It may stick to particles in water, which will cause it to eventually settle to the bottom sediment. TCE has not been shown to build up significantly in plants and animals. Both the National Toxicology Program and International Agency for Research on Cancer have determined that TCE is a probable human carcinogen (ASTDR, 2003).

Cis-1,2-DCE is a highly flammable, colorless liquid with a sharp, harsh odor. It is used to produce solvents and in chemical mixtures. Very small amounts of it can be smelled in the air. Cis-1,2-DCE evaporates rapidly into the air. Cis-1,2-DCE can travel through soil or dissolve in water in the soil. It is possible that it can contaminate groundwater. In groundwater, it takes about 13-48 weeks to break down. Breathing high levels of cis-1,2-DCE can make you feel nauseous, drowsy, and tired; breathing very high levels can kill you. Animals that ingested extremely high doses of cis-1,2-DCE died. Lower doses of cis-1,2-DCE caused effects on the blood, such as decreased numbers of red blood cells, and also effects on the liver. The long-term (365 days or longer) human health effects after exposure to low concentrations of cis-1,2-DCE are not known. One animal study suggested that an exposed fetus may not grow as quickly as one that has not been exposed. Exposure to cis-1,2-DCE has not been shown to affect fertility in people or animals. The EPA has determined that cis-1,2-DCE is not classifiable as to its human carcinogenicity (ASTDR, 1997).

Vinyl chloride is a colorless gas. It burns easily and is not stable at high temperatures. It has a mild, sweet odor. It is a manufactured substance that does not occur naturally. It can be formed when other substances such as PCE and TCE are broken down. Exposure to vinyl chloride occurs mainly in the workplace. The U.S. DHHS has determined that vinyl chloride is a known carcinogen. Breathing high levels of vinyl chloride for short

periods of time can cause dizziness, sleepiness, unconsciousness, and at extremely high levels can cause death. Breathing vinyl chloride for long periods of time can result in permanent liver damage, immune reactions, nerve damage, and liver cancer. Liquid vinyl chloride evaporates easily. Vinyl chloride in water or soil evaporates rapidly if it is near the surface. Vinyl chloride in the air breaks down in a few days to other substances, some of which can be harmful (ASTDR, 2006).

Source materials discovered during the sampling event at the Site in groundwater include the following:

Tetrachloroethene (PCE)
Trichloroethene (TCE)
Cis-1,2-Dichloroethene (cis-1,2-DCE)
Vinyl Chloride (VC)
Trans-1,2-Dichloroethene (trans-1,2-DCE)
Acetone
Methylcyclohexane
Toluene

Source materials discovered during the sampling event at the Site in soil include the following:

Cis-1,2-Dichloroethene (cis-1,2-DCE)
Vinyl Chloride (VC)
Trans-1,2-Dichloroethene (trans-1,2-DCE)
Acetone
Methylcyclohexane
Toluene
Chloroform
Cyclohexane
Ethylbenzene
O-Xylene
M,p-Xylene

6.0 GROUNDWATER EXPOSURE PATHWAY

6.1 Hydrogeology

Groundwater of the Salt Lake Valley is found in four aquifers located in basin-fill deposits of primarily Quaternary and late Tertiary age (Hely, et al, 1971). The groundwater regime is composed of (1) a confined (artesian) aquifer, (2) a shallow unconfined aquifer overlying the confined aquifer, (3) a deep unconfined aquifer between the confined aquifer and the mountains, and (4) unconfined perched aquifers. All are connected hydraulically to some degree. The confined artesian aquifer and the deep unconfined aquifer together constitute the primary source of most groundwater in Salt Lake Valley, and are also recognized as the principal aquifer (Waddell, et al, 1987).

The confined artesian aquifer consists of Quaternary deposits of clay, silt, sand, and gravel. The deep unconfined aquifer consists of deposits of large, well sorted, coarse-grained sands and gravels along with fines, eroded from the Wasatch Range and Oquirrh Mountains. These materials consist of deltaic deposits attributable to primary creeks draining into the Salt Lake Valley (Anderson, et al, 1994). Permeability of the principal aquifer, composed of these two aquifers, is relatively high with a yield capable of large volumes of water (URS Consultants, Inc., 1993). Primary recharge to the principal aquifer occurs along the front of the Wasatch Range.

The shallow unconfined aquifer is composed of clay, silt, and fine sand. This aquifer has a permeability that is relatively slow with poor storage capacity, and is only slightly greater than that of the underlying confining bed (Thiros, 1995). The shallow aquifer is seldom used for water supply because of the poor chemical quality of the water that it contains and its small yield to wells (Waddell, et al, 1987). Direction of groundwater flow in the shallow unconfined aquifer is inward from the outer reaches of the southern and mid-portions of the Salt Lake Valley, with a northerly component toward the Jordan River (Seiler and Waddell, 1984).

6.2 Targets

There were 117 wells identified within a four-mile radius of the Site that are used for drinking water purposes (UDEQ/DERR, 2008a). The deep aquifer is the source for as much as 80% of the drinking water in Murray City and surrounding areas (UDEQ/DERR, 1999). The nearest drinking water well, called New Howe well, is owned and operated by the City of Murray. It is approximately 360 feet southeast of the Site (UDEQ/DERR, 2008a). VOCs were obtained by the City of Murray on May 23, 2008 and the analytical laboratory results were all non-detect (Appendix F; City of Murray, 2008)

There are 6,671 Points of Diversion (PODs) within a four-mile radius of the Site. Of these, 297 were listed as surface PODs and 6,224 as underground (UDEQ/DERR, 2008a). The uses listed for the 6,224 underground PODs include domestic, municipal, irrigation, power, stock watering, and "other" (DWRi, 2008). No contact was made with the owners of these underground PODs. Little is known regarding the current activity of these PODs but it is likely that few of these are used to supply drinking water since drinking water is supplied to all residences and businesses in the area by the City of Murray (UDEQ/DERR, 1999).

6.3 Sample Locations

On December 2 through 5, 2008, groundwater samples at the Site were collected from 11 direct-push borings, including one duplicate sample and one extra sample. Samples were collected from predetermined locations including samples in the vicinity of three municipal wells that are owned and operated by the City of Murray. Two maps showing groundwater sampling locations are included with this report as Figures 4 and 5.

6.4 Analytical Results

The analytical results from the December 2008 sampling event confirm the presence of chlorinated solvents in the shallow aquifer.

Analytical results from the field samples are compared to screening standards in an attempt to determine risk. There are three benchmark values applicable to groundwater. These are 1) Maximum Contaminant Limit/Maximum Contaminant Limit Goal (MCL/MCLG), 2) Screening Concentration for Cancer Risk, and 3) Screening Concentration for Non-Cancer Toxicological Responses. The lowest of these benchmark values is the one that is used to determine Hazard Ranking System (HRS) scores. These scores are used to determine if a site is a potential candidate for the NPL list.

In addition, analytical results from field samples are typically compared to analytical results from background sample(s) and sample quantitation limits (SQL) to determine observed contamination, as specified by the HRS. If the background concentration is not detected, observed contamination is established when the sample concentration equals or exceeds the SQL. However, if the background concentration equals or exceeds the detection limit, observed contamination is established when the sample concentration "significantly exceeds" the background concentration. Generally "significantly exceeds" is defined to be situations where the sample concentration exceeds the background concentration by at least three times or more.

In the groundwater samples that were submitted to the CLP laboratory, four of the 52 VOCs that were analyzed were above the SCDM benchmarks. These VOCs were PCE, TCE, cis-1,2-DCE and VC. An extra groundwater sample was also obtained (described below) and analyzed for GRO.

PCE was detected in four of the groundwater samples ranging from 15 µg/L to 2300 µg/L. All four samples exceeded the MCL/MCLG benchmark of 5 µg/L for PCE. Two of the samples exceeded the non-cancer toxicological responses benchmark of 360 µg/L.

TCE was detected in three of the groundwater samples ranging from 8.3 µg/L to 110 µg/L. All three samples exceeded the MCL/MCLG benchmark of 5 µg/L for TCE. All three samples also exceeded the screening concentration for cancer benchmark of 7.7 µg/L.

Cis-1,2-DCE was detected in two of the groundwater samples at concentrations of 4100 µg/L and 4700 µg/L. The MCL/MCLG for groundwater is 70 µg/L while the non-cancer toxicological responses benchmark for groundwater is 360 µg/L.

VC was detected in two of the groundwater samples at concentrations of 150 µg/L and 180 µg/L. The screening concentration for cancer benchmark for groundwater is 0.057 µg/L, the non-cancer toxicological responses benchmark is 110 µg/L, and the MCL/MCLG is 2 µg/L.

The extra groundwater sample (5600-GW-13) was collected at the southwest corner of the 7-11 parking lot when a black oily substance with a strong petroleum odor was discovered in the soil boring obtained at 8-12 feet bgs. Analytical laboratory results for this groundwater sample showed a result of 3,300 µg/L for GRO (Figure 6). A consultation with personnel from the LUST Branch of DERR revealed that 3 ppm TPH in groundwater is considered close to background for that location in Murray City.

In summary, the highest concentrations of groundwater contamination found during the sampling event was at 5600-GW-08 and the blind duplicate for this borehole located in the Chase Bank parking lot (Figure 6). This site was positive for PCE, TCE, cis-1,2-DCE, and VC contamination. Red Hanger Cleaners (5600-GW-02) and Jiffy Lube (5600-GW-03) were both positive for PCE contamination. These two boreholes were approximately 40 feet apart from each other. TCE contamination was also detected at Jiffy Lube (Figure 6). Analytical laboratory results for all of these contaminants were above the SCDM benchmarks. Samples collected adjacent to the three Murray City municipal wells did not show evidence of groundwater or soil contamination. Analytical laboratory results on the New Howe well obtained by the City of Murray likewise shows no evidence of groundwater contamination in the deep aquifer (Appendix F). The background sample was collected at 900 East and Vine Street (5600-GW-11) which was approximately one-half mile southeast of the Site. PCE, TCE, cis-1.2-DCE, and VC contamination were not detected in the groundwater and soil samples at this site; however, both groundwater and soil samples did detect acetone contamination.

The VOC data results for groundwater and soil are presented in Tables 2 and 3 respectively. The data validation reports and laboratory analytical results are included in Appendix E.

7.0 SOIL EXPOSURE PATHWAY

7.1 Geology

The site is located in a commercial/retail area and is surrounded by a heavily populated residential community. Most of the Site is covered with asphalt and concrete parking lots, sidewalks, and commercial structures. Thin strips of grassy/vegetated areas are present across the Site. Soil profile information was obtained from the DERR office files of LUST site investigations that were completed in the vicinity. During LUST removal activities at the 7-Eleven facility, native soils encountered consisted primarily of fine-grained lacustrine deposits composed of brown clayey silts (ML) and silty sands (SM) to 12 feet bgs. At Jiffy Lube, soil beneath the site consisted primarily of poorly graded, medium to fine-grained sand with silt (SM-SP) to a soil sampling depth of eight feet bgs.

7.2 Targets

The closest residence is located approximately 500 yards south of the Site. There are four schools that are located one mile or less from the Site and a total of seven schools that are within 1.5 miles of the Site. Two strip malls are directly west of the Site and

draw a lot of traffic to the area. In addition, Mick Riley Golf Course is 0.3 miles northwest of the Site. The population within a quarter-mile of the Site is over 1,000; the population within a half-mile of the Site is over 4,000.

7.3 Sample Locations

Soil samples at the Site were collected from the same 11 direct-push borings used to collect groundwater samples (Figures 4 and 5).

7.4 Analytical Results

In the soil samples that were submitted to the CLP laboratory, six of the 52 VOCs that were analyzed were above the SCDM benchmarks. These VOCs were cis-1,2-DCE, VC, acetone, trans-1,2-DCE, chloroform and toluene.

There are two benchmark values applicable to soil. These are 1) Screening Concentration for Cancer Risk, and 2) Screening Concentration for Non-Cancer Toxicological Responses.

Cis-1,2-DCE was detected in two of the soil samples at concentrations of 630 µg/kg and 920 µg/kg. For soil, the non-cancer toxicological responses benchmark is 7.8E+05 µg/kg.

VC was detected in one of the soil samples at a concentration of 82 µg/kg. The screening concentration for cancer benchmark in soil is 4.3E+02 µg/kg and the non-cancer toxicological responses benchmark is 2.3E+05 µg/kg.

Acetone was also detected in two of the soil samples at concentrations of 24 µg/kg and 73 µg/kg. The 73 µg/kg concentration level was detected in the background sample. The non-cancer toxicological responses benchmark for soil is 7.0E+07 µg/kg.

Trans-1,2-DCE was detected in two of the soil samples at concentrations of 11 µg/kg and 38 µg/kg. The non-cancer toxicological responses benchmark for soil is 1.6E+06 µg/kg.

Chloroform was detected in one of the soil samples at a concentration of 12 µg/kg. The non-cancer toxicological responses benchmark for soil is 7.8E+05 µg/kg.

Toluene was detected in one of the soil samples at a concentration of 8.1 µg/kg. The non-cancer toxicological responses benchmark for soil is 1.6E+07 µg/kg.

In summary, the borehole site with the highest concentrations of soil contamination occurred at 5600-SO-08 and the blind duplicate for this borehole located in the Chase Bank parking lot (Figure 6). High concentrations of cis-1,2-DCE was found in both samples. In addition, VC, acetone, trans-1,2-DCE, and toluene contaminants were detected and were above the established SCDM benchmarks. The southwestern side of

7-11 (5600-SO-04) was positive for chloroform contamination and acetone was detected in the background sample (5600-SO-11). These were also above the SCDM benchmarks.

As stated previously in Section 6.4, the VOC data results for groundwater and soil are presented in Tables 2 and 3 respectively. The data validation reports and laboratory analytical results are included in Appendix E.

8.0 SURFACE WATER EXPOSURE PATHWAY

8.1 Hydrology

The Salt Lake Valley is located in the Great Basin drainage system, which is a closed system with no outlets. Surface water drainage in the region is toward the Great Salt Lake, primarily from the Jordan River and several large perennial streams in the Wasatch Front area. Two major creeks are located in the vicinity of the Site. Big Cottonwood Creek is located approximately 1.1 miles north of the Site and Little Cottonwood Creek is located approximately 0.5 miles west of the Site. A small annual stream northwest of the Site flows through the length of a nearby golf course called Mick Riley Golf Course. This stream is approximately 0.3 miles from the Site and flows downgradient into Big Cottonwood Creek. The Site is relatively flat with a slight northwest slope and is located in a semi-arid environment. Because most of the area at the Site is covered with asphalt, concrete or structures, much of the surface runoff is collected in the storm drain system. The storm water drains into Big Cottonwood Creek, possibly Little Cottonwood Creek, and ultimately into the Jordan River and the Great Salt Lake.

8.2 Targets

There are 297 surface points of diversion (PODs) identified within a four-mile radius of the Site. Potential targets for surface water include these PODs, Little Cottonwood Creek, Big Cottonwood Creek, the Mick Riley Golf Course annual stream, the Jordan River, wetlands along the river, and various species of animal and plant life. Fish present in the downstream segment of the Jordan River are mainly carp, catfish, walleye, white bass, and some trout (UDEQ/DERR, 1997; Pettengill, 1997). The creeks are unlined and likely used primarily for irrigation, storm water runoff, and occasional wildlife habitat.

8.3 Surface Water Exposure Conclusions

It is unknown if chlorinated solvents have impacted surface water near the Site. However, due to the volatile nature of chlorinated solvents, it is likely that they would evaporate if exposed to air for an extended period of time. Therefore, no surface water samples were collected as part of this investigation.

9.0 AIR EXPOSURE PATHWAY

9.1 Meteorology

The climate at the Site is temperate and semi-arid. Wind conditions vary depending on the time of year and directions of storm fronts passing through the area. In general, winds are usually light to moderate, although strong winds can occur. The normal maximum temperature ranges from 37° F in January to 93.7° in July. The normal minimum temperature ranges from 19.7° in January to 61.8° in July. Average annual rainfall for the valley is 15.31 inches per year with a normal monthly high of 2.21 inches in April and a normal monthly low of 0.72 inches in July. Average annual snowfall is 58 inches. The estimated pan evaporation is 83.91 inches per year. Winds are predominantly from the south and southwest with a mean speed of 4 to 5 miles per hour (Brough, et al, 1983).

9.2 Targets

The Site is located within a commercial/retail area. The businesses in the vicinity of the Site provide employment for many people. There is pedestrian and vehicular traffic in the area surrounding the Site at all times during the day and night. The resident population within a four-mile radius of the Site is 217,631. Potential targets are the customers and employees of all the retail shops and businesses in the immediate area and the residents in the surrounding community.

9.3 Air Exposure Conclusions

PCE, TCE, cis-1,2-DCE, and VC are the primary contaminants of concern that were detected in the groundwater and the possibility of volatilization into the atmosphere is unlikely due to asphalt, concrete and structures covering most of the exposed soil in the area of the Site. This does not appear to be a significant route of exposure for the human population on or off-site. As such, no air samples were collected as part of this investigation.

10.0 SUMMARY AND CONCLUSIONS

Previous investigations at the 5600 South 900 East Plume Site in 2003 and 2004 revealed that chlorinated solvents were present in the groundwater. The SI Work Plan for this Site targeted specific areas for sampling to obtain up-to-date information regarding groundwater and soil quality and these areas were sampled in December 2008. Analytical laboratory results from this sampling event confirm the presence of PCE, TCE, cis-1,2-DCE, VC and other contaminants. The source of this contamination appears to originate from the historic Red Hanger Cleaners. This business was in operation from 1975 through at least 1985 and the contamination may likely have resulted from poor handling and disposal practices.

The laboratory results show that PCE, TCE, cis-1,2-DCE and VC concentrations are highest in the groundwater and soil samples collected from the Chase Bank property borehole (5600-GW/SO-08). PCE and TCE were detected at 2300 µg/L and 97 µg/L respectively in the groundwater; however, these contaminants were not detected in the soil. Cis-1,2-DCE and VC were detected at 4700 µg/L and 150 µg/L in the groundwater and 920 µg/kg and 82 µg/kg in the soil respectively. These values were confirmed in the blind duplicate sample collected from the same borehole. PCE and TCE were also detected to a lesser extent in the groundwater samples collected adjacent to the currently operating Red Hanger Cleaners. PCE was detected at 15 µg/L and 71 µg/L in the groundwater beneath the Red Hanger Cleaners (5600-GW/SO-02) and the Jiffy Lube (5600-GW/SO-03) respectively. The Jiffy Lube borehole was located at the easternmost border of the property and was approximately 40 feet from the Red Hanger Cleaners borehole. TCE was also detected in the groundwater beneath Jiffy Lube at 8.3 µg/L. No soil contamination was detected at either of these sites.

These concentrations exceed the SCDM values as set forth by the EPA and UDEQ/DERR. Based on the data collected to date, it is possible that the chlorinated solvent plume has migrated northwest of the historic Red Hanger Cleaners site which is the direction that groundwater has been determined to flow in the area. Further groundwater and soil testing would be needed to confirm this. No groundwater or soil contamination was detected at any of the three Murray City municipal well sites.

During the SI investigation, a black oily substance with a strong petroleum odor was incidentally found in the soil and groundwater at the southwest corner of the 7-11 parking lot. An extra groundwater sample was collected and shipped to the CLP laboratory for analysis. Analytical laboratory results for this groundwater sample detected the presence of GRO at 3,300 µg/L.

In general, the objectives of the DERR 2008 sampling event at the Site were met. The presence of hazardous materials in the shallow aquifer has been confirmed. This is not likely a threat to human health as all residences and businesses are supplied with their drinking water by the City of Murray. It may, however, pose a threat to the environment and the extent of the plume at the Site has not yet been determined.

11.0 REFERENCES

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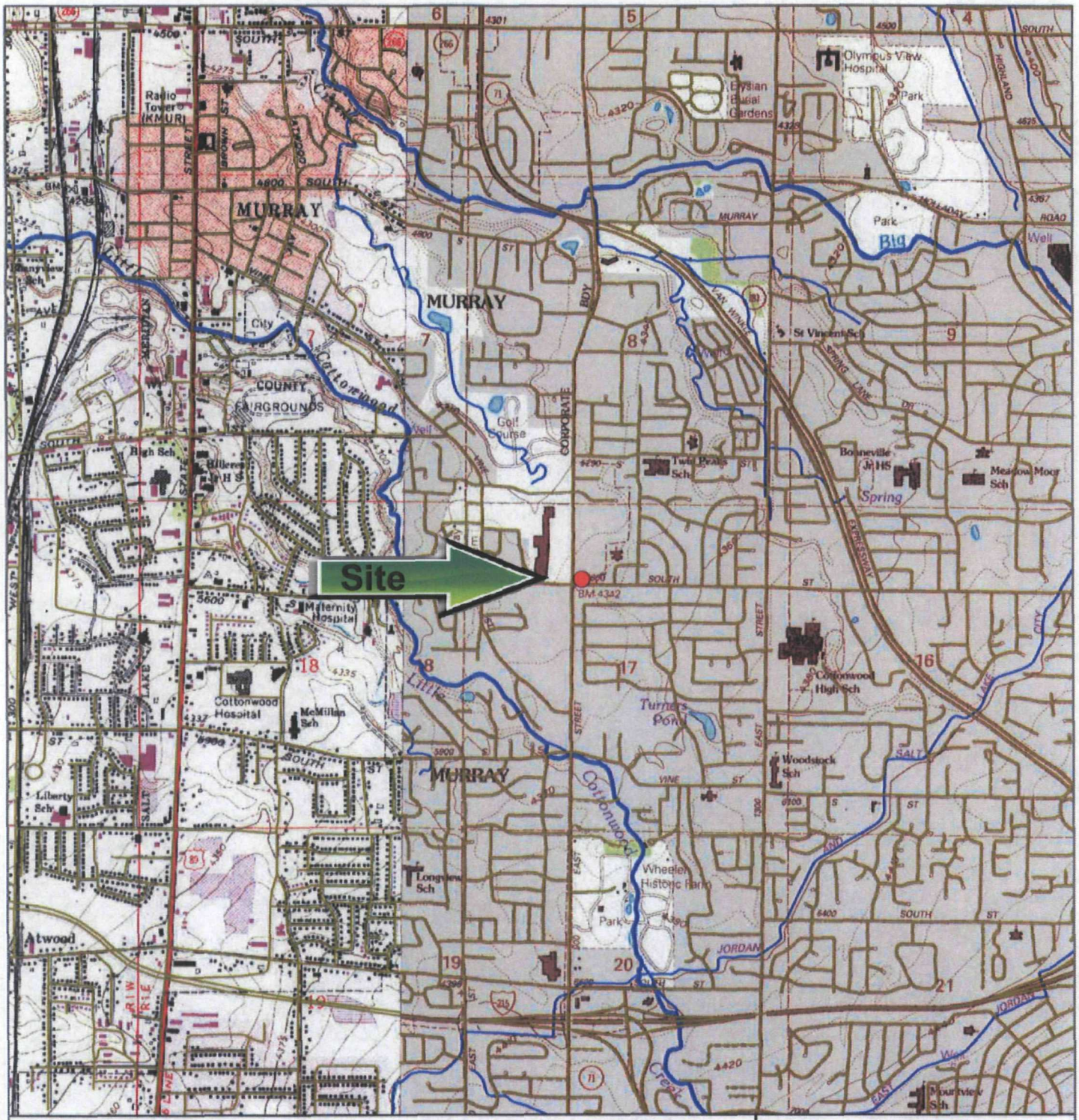
Figures



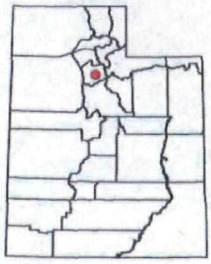
0 0.25 0.5 1 1.5 2 Miles

Legend

- 5600 South 900 East Plume site
- Major Roads
- Railroads
- Water Courses

Base Map: United States Geological Survey toporaphic map, 1999

N W E S

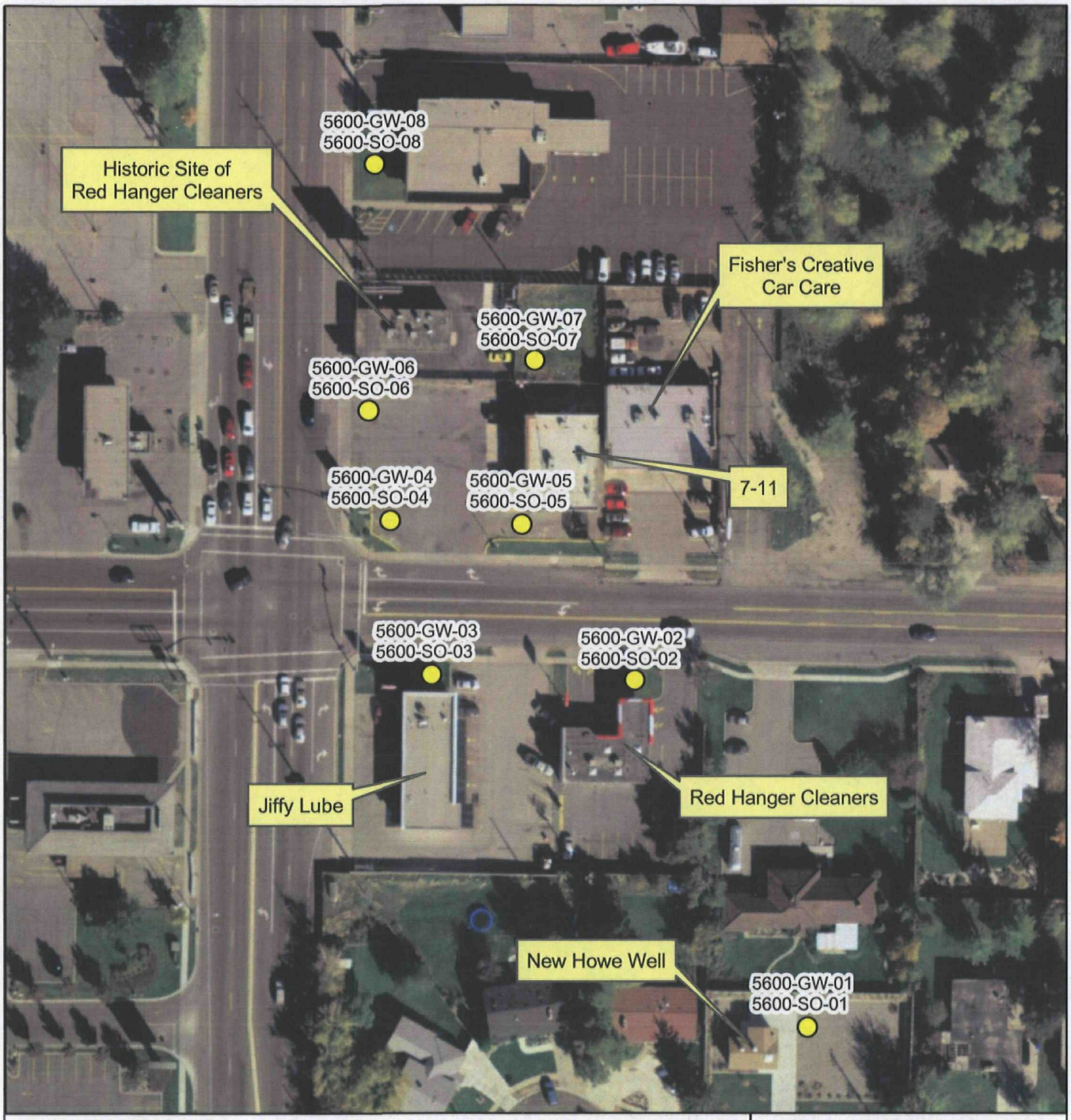


Utah Department of Environmental Quality
Division of Environmental Response and Remediation

Figure 1
Site Location

5600 South 900 East Plume
Salt Lake County, Utah

by: Kim Viehweg date: 6/04/08



0 45 90 180 270 360 Feet

Legend

Proposed Sample Locations

5600-GW-01
5600-SO-11
Ground water and soil boring identifiers

N
W E
S

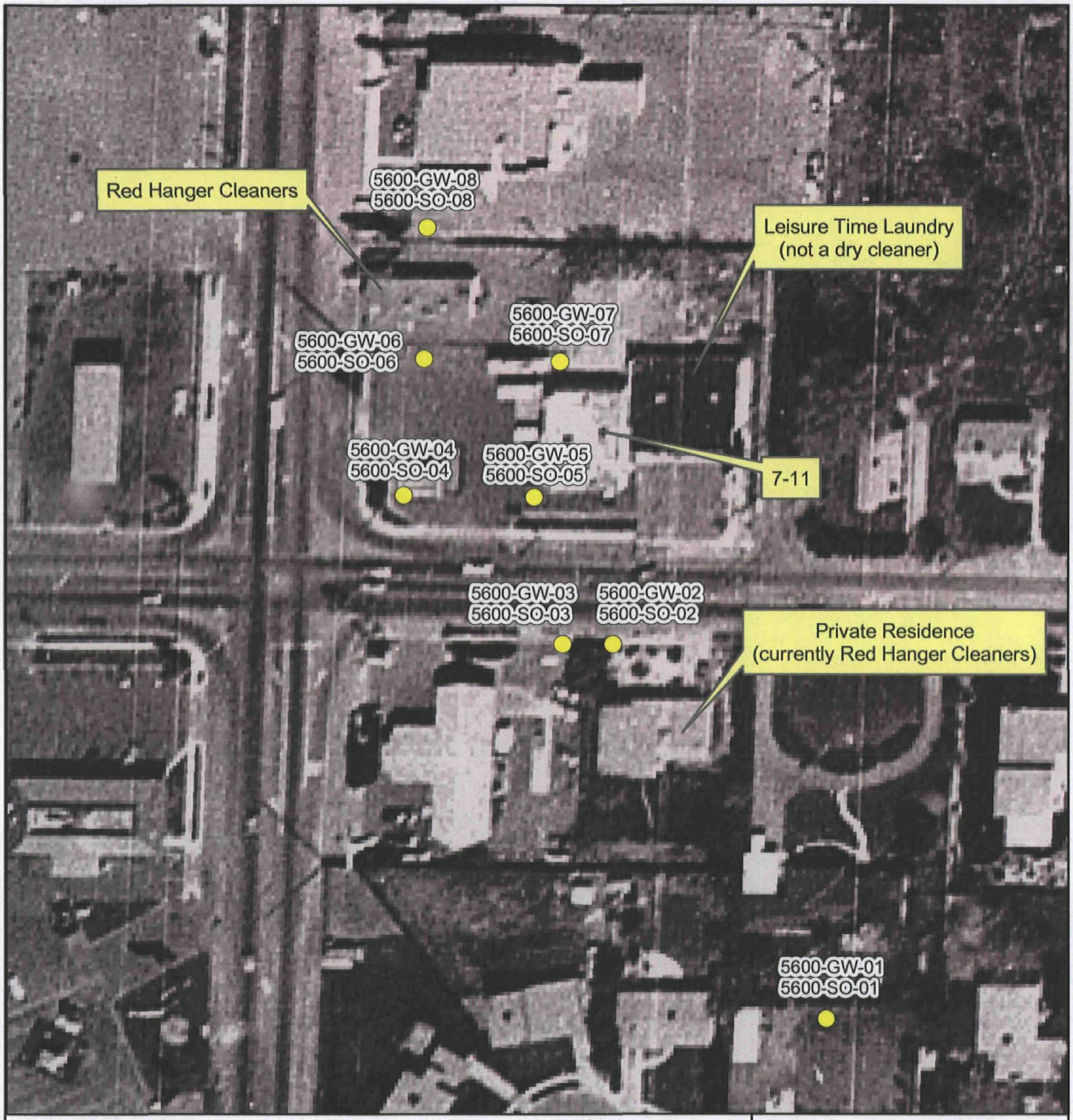
Aerial photograph obtained from the State of Utah GIS database, 2006

Utah Department of Environmental Quality
Division of Environmental Response and Remediation

Figure 2
Previous Sample Locations

5600 South 900 East Plume
Salt Lake County, Utah

by: Kim Viehweg date: 4/11/08



0 45 90 180 270 360 Feet

Legend

Sample Locations

5600-GW-01
5600-SO-11

Ground water and soil boring identifiers

Aerial photograph obtained from Olympus Aerial Surveys Inc. Photo taken on April 26, 1980.

N
W E
S

Utah Department of Environmental Quality
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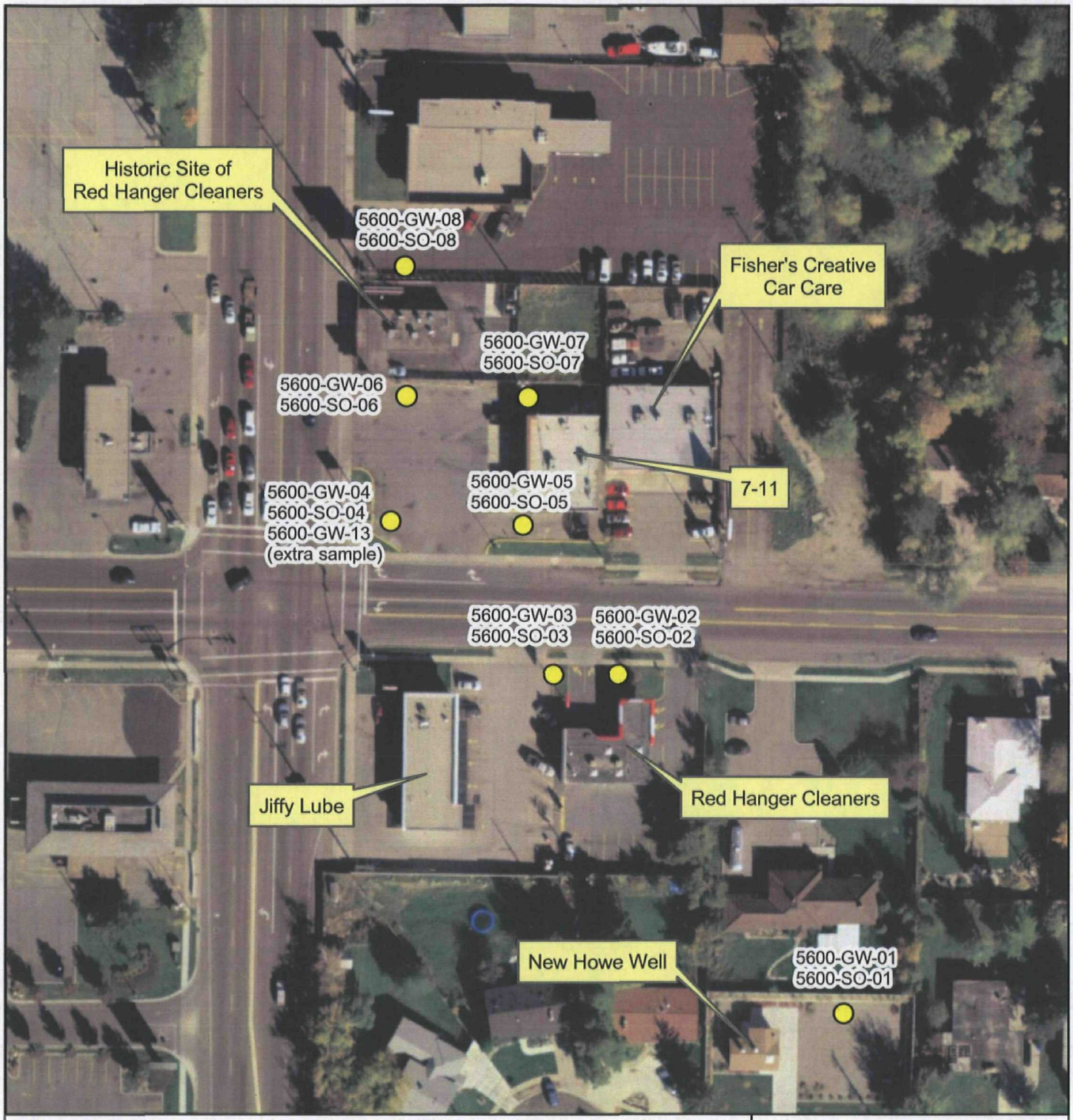
Figure 3
Site Sampling Locations
(Historic Site Map)

5600 South 900 East Plume
Salt Lake County, Utah

by: Kim Viehweg date: 4/11/08



0 45 90 180 270 360 Feet

Legend

Sample Locations

5600-GW-01
5600-SO-11

Ground water and soil boring identifiers

Aerial photograph obtained from the State of Utah GIS database, 2006

N
W E
S

Utah Department of Environmental Quality
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Figure 4
Site Sampling Locations
(Map 1)

5600 South 900 East Plume
Salt Lake County, Utah

by: Kim Viehweg date: 4/11/08

0 0.1 0.2 0.4 0.6 Miles

Utah Department of Environmental Quality
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Legend

- 5600 S 900 E Plume Site
- Sample Locations

5600-GW-11
5600-SO-21
Ground water and soil boring identifiers

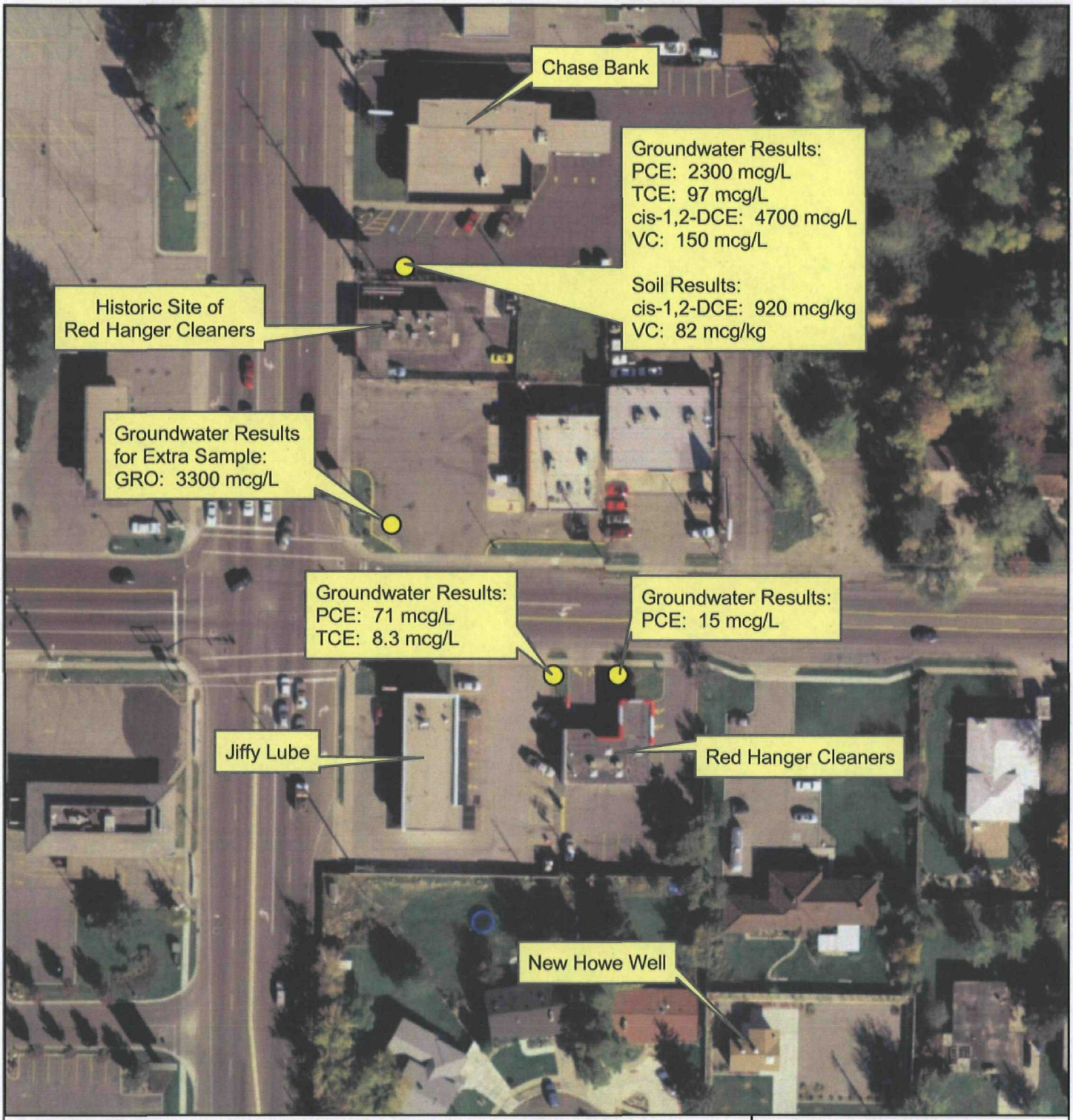
N
W E
S

Aerial photograph obtained from the State of Utah GIS database, 2006

Figure 5
Site Sampling Locations
(Map 2)

5600 South 900 East Plume
Salt Lake County, Utah

by: Kim Viehweg date: 4/11/08



0 45 90 180 270 360 Feet

Legend

○ = Sample Locations
PCE = Tetrachloroethene
TCE = Trichloroethene
DCE = cis-1,2-Dichloroethene
VC = Vinyl Chloride
GRO = Gasoline Range Organics
mcg/L = micrograms per liter

Aerial photograph obtained from the State of Utah GIS database, 2006

N
W E
S

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Figure 6
Groundwater and Soil Sample Laboratory Results

5600 South 900 East Plume
Salt Lake County, Utah

by: Kim Viehweg date: 3/03/09

Tables

Table 1

Summary of Sample Collection
5600 South 900 East Plume

Field Sample No.	Matrix	Container[1]	Location	Rationale	VOCs	QA/QC
5600-GW-01, 5600-SO-01	Water/Soil	40 mL Vials, Glass Jars	Parking Lot New Howe Well	Test for VOCs	X	MS/MSD[2]
5600-GW-02, 5600-SO-02	Water/Soil	40 mL Vials, Glass Jars	Parking Lot Red Hanger Cleaners	Test for VOCs	X	
5600-GW-03, 5600-SO-03	Water/Soil	40 mL Vials, Glass Jars	Parking Lot Jiffy Lube	Test for VOCs	X	
5600-GW-04, 5600-SO-04	Water/Soil	40 mL Vials, Glass Jars	Parking Lot 7-11	Test for VOCs	X	
5600-GW-05, 5600-SO-05	Water/Soil	40 mL Vials, Glass Jars	Parking Lot 7-11	Test for VOCs	X	
5600-GW-06, 5600-SO-06	Water/Soil	40 mL Vials, Glass Jars	Parking Lot 7-11	Test for VOCs	X	
5600-GW-07, 5600-SO-07	Water/Soil	40 mL Vials, Glass Jars	Field adjacent to 7-11	Test for VOCs	X	
5600-GW-08, 5600-SO-08	Water/Soil	40 mL Vials, Glass Jars	Parking Lot Chase Bank	Test for VOCs	X	Blind Duplicate[2]
5600-GW-09 5600-SO-09	Water/Soil	40 mL Vials, Glass Jars	Parking Lot Highland Dairy Well	Test for VOCs	X	
5600-GW-10 5600-SO-10	Water/Soil	40 mL Vials, Glass Jars	Parking Lot 5th E Well #3	Test for VOCs	X	
5600-GW-11 5600-SO-11	Water/Soil	40 mL Vials, Glass Jars	Up gradient	Test for VOCs	X	Background
Trip Blank	Water	40 mL Vials	Cooler	Detect Introduced Contamination	X	Trip Blank

[1] Soil samples require one 4-oz glass jar for each analysis.
[1] Water samples require three 40 mL glass vials preserved with HCL for VOC analysis.
[2] Blind Duplicate for water and soil will be labeled on the Chain of Custody as 5600-GW-12 and 5600-SO-12
[2] MS/MSD requires triple volume for VOCs in water sample.

Table 2. Volatile Organics Data Results for Groundwater at the 5600 South 900 East Plume.

	Sample #	Superfund Chemical Data Matrix			5600-GW-01		5600-GW-02		5600-GW-03		5600-GW-04		5600-GW-05		5600-GW-06		5600-GW-07		5600-GW-08		5600-GW-09		5600-GW-10		5600-GW-11		5600-GW-12		*Trip Blank*		*Trip Blank*	
	EPA Sample #				H1YQ0		H1YQ1		H1YQ2		H1YQ3		H1YQ4		H1YQ5		H1YQ6		H1YQ7		H1YQ8		H2560		H1YP6		H2561		*H1YP9*		*H29Q8* [3]	
	Sample Location	MCL / MCLG	Screening Concentration for Non-Cancer Toxicological Responses	Screening Concentration for Cancer	New Howe Well		Red Hanger Cleaners		Jiffy Lube		Southwestern Side of 7-11 Parking Lot		Southeastern Side of 7-11 Parking Lot		Northwestern Side of 7-11 Parking Lot		Northeastern Side of 7-11 Parking Lot		Chase Bank		Highland Dairy Well		5th E Well #3		900 East & Vine Street (Background Sample)		Blind Duplicate Sample Collected from 5600-GW-08		*Trip Blank*		*Trip Blank*	
	Sample Date	--	--	--	12/04/08		12/04/08		12/04/08		12/04/08		12/04/08		12/05/08		12/05/08		12/05/08		12/05/08		12/05/08		12/02/08		12/05/08		*12/02/08*		*12/04/08*	
	Sample Time	--	--	--	9:05		13:10		10:45		16:46		15:20		10:40		11:59		9:40		14:45		16:05		9:35		9:40		*07:30*		*07:30*	
	Sample Type	--	--	--	Groundwater		Groundwater		Groundwater		Groundwater		Groundwater		Groundwater		Groundwater		Groundwater		Groundwater		Groundwater		Groundwater		QA/QC		*QA/QC*		*QA/QC*	
	Depth to GW	SCDM [1]	SCDM [2]	SCDM [3]	10.0 ft.		9.0 ft.		10.0 ft.		10.0 ft.		10.0 ft.		8.0 ft.		8.0 ft.		8.0 ft.		12.0 ft.		6.0 ft.		7.0 ft.		8.0 ft.		*NA*		*NA*	
Cas No.	analyte	µg/l	µg/l	µg/l	µg/l	Q	µg/l	Q	µg/l	Q	µg/l	Q	µg/l	Q	µg/l	Q	µg/l	Q	µg/l	Q	µg/l	Q	µg/l	Q	µg/l	Q	µg/l	Q	*µg/l*	*Q*	*µg/l*	*Q*
75-71-8	Dichlorofluoromethane	--	--	--	5	U	5	U	5	U	5	U	5	U	5	U	5	UJ	5	UJ	5	UJ	5	U	5	U	5	U	*5*	*U*	*5*	*U*
74-87-3	Chloromethane	--	--	--	5	U	5	U	5	U	5	U	5	U	5	U	5	UJ	5	UJ	5	UJ	5	U	5	U	5	U	*5*	*U*	*5*	*U*
75-01-4	Vinyl Chloride	2	110	0.057	5	U	5	U	5	U	5	U	5	U	5	U	5	UJ	150		5	U	5	U	5	U	180		*5*	*U*	*5*	*U*
74-83-9	Bromomethane	--	--	--	5	UJ	5	UJ	5	UJ	5	UJ	5	UJ	5	UJ	5	UJ	5	UJ	5	UJ	5	UJ	5	U	5	UJ	*5*	*U*	*5*	*UJ*
75-00-3	Chloroethane	--	--	--	5	U	5	U	5	U	5	U	5	U	5	U	5	UJ	5	UJ	5	UJ	5	U	5	U	5	U	*5*	*U*	*5*	*U*
75-69-4	Trichlorofluoromethane	--	11,000	--	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	*5*	*U*	*5*	*U*
75-35-4	1,1-Dichloroethene	7	1,800	--	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	*5*	*U*	*5*	*U*
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	--	--	--	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	*5*	*U*	*5*	*U*
67-64-1	Acetone	--	33,000	--	10	U	10	U	10	U	10	U	10	UJ	10	U	10	U	10	U	10	U	10	U	11		100	U	*49*		*72*	*U*
75-15-0	Carbon Disulfide	--	3,700	--	5	U	5	U	5	U	5	U	5	U	5	U	5	UJ	5	UJ	5	UJ	5	U	5	U	5	U	*5*	*U*	*5*	*U*
79-20-9	Methyl Acetate	--	--	--	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	*5*	*U*	*5*	*U*
75-09-2	Methylene Chloride	5	2,200	11	10	U	10	U	1.0	U	10	U	10	U	10	U	10	U	5	U	5	U	5	U	10	U	10	U	*5*	*U*	*5*	*U*
156-60-5	trans-1,2-Dichloroethene	100	730	--	5	U	5	U	5	U	5	U	5	U	5	U	5	U	82		5	U	5	U	5	U	88		*5*	*U*	*5*	*U*
1634-04-4	Methyl-tert-Butyl Ether	--	--	--	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	*5*	*U*	*5*	*U*
75-34-3	1,1-Dichloroethane	--	3,700	--	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	*5*	*U*	*5*	*U*
156-59-2	cis-1,2-Dichloroethene	70	360	--	5	U	5	U	5	U	5	U	5	U	5	U	5	U	4,700	D	5	U	5	U	5	U	4,100	D	*5*	*U*	*5*	*U*
78-93-3	2-Butanone (MEK)	--	--	--	10	U	10	U	10	U	10	U	10	UJ	10	U	10	U	10	U	10	U	10	U	10	U	10	U	*10*	*U*	*10*	*U*
74-97-5	Bromochloromethane				5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	*5*	*U*	*5*	*U*
67-66-3	Chloroform	--	360	--	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	*5*	*U*	*5*	*U*
71-55-6	1,1,1-Trichloroethane	200	--	--	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	*5*	*U*	*5*	*U*
110-82-7	Cyclohexane	--	--	--	5	UJ	5	UJ	5	UJ	5	U	5	U	5	U	5	UJ	79	U	5	U	5	U	5	U	71	U	*5*	*U*	*5*	*U*
56-23-5	Carbon Tetrachloride	5	26	0.66	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	*5*	*U*	*5*	*U*
71-43-2	Benzene	5	150	1.5	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	*5*	*U*	*5*	*U*
107-06-2	1,2-Dichloroethane	5	--	0.94	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	*5*	*U*	*5*	*U*
123-91-1	1,4-Dioxane	--	--	--	100	U	100	U	100	U	100	U	100	U	100	U	100	U	100	U	100	U	100	U	100	U	100	U	*100*	*U*	*100*	*U*
79-01-6	Trichloroethene (TCE)	5	--	7.7	5	U	5	U	8.3		5	U	5	U	5	U	5	U	97		5	U	5	U	5	U	110		*5*	*U*	*5*	*U*
108-87-2	Methylcyclohexane	--	--	--	5	UJ	5	UJ	5	UJ	5	U	5	U	5	U	5	UJ	17		5	U	5	U	5	U	16		*5*	*U*	*5*	*U*
78-87-5	1,2-Dichloropropane	5	--	1.3	5	UJ	5	UJ	5	UJ	5	U	5	U	5	U	5	UJ	6.5	U	5	U	5	U	5	U	5	U	*5*	*U*	*5*	*U*
75-27-4	Bromodichloromethane	--	730	1.4	5	UJ	5	UJ	5	UJ	5	U	5	U	5	U	5	UJ	5	U	5	U	5	U	5	U	5	U	*5*	*U*	*5*	*U*
10061-01-5	cis-1,3-Dichloropropene	--	--	--	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	*5*	*U*	*5*	*U*
108-10-1	4-Methyl-2-Pentanone	--	2,900	--	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	*10*	*U*	*10*	*U*
108-88-3	Toluene	1,000	7,300	--	5	U	5	U	5	U	5	U	5	U	5	U	5	U	12		5	U	5	U	5	U	12		*3.3*	*J*	*13*	*J*
10061-02-6	trans-1,3-Dichloropropene	--	--	--	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	*5*	*U*	*5*	*U*
79-00-5	1,1,2-Trichloroethane	3	150	1.5	5	U	5	U	5	U	5	U	5	U	5	U	5	U	34	U	5	U	5	U	5	U	5	U	*5*	*U*	*5*	*U*
127-18-4	Tetrachloroethene (PCE)	5	360	1.6	5	U	15		71		3.7	J	5	U	5	U	5	U	2,300	D	5	U	5	U	5	U	2,100	D	*5*	*U*	*5*	*U*
591-78-6	2-Hexanone	--	--	--	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	10	U	*10*	*U*	*10*	*U*
124-48-1	Dibromochloromethane	--	--	--	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	*5*	*U*	*5*	*U*
106-93-4	1,2-Dibromoethane	--	--	0.001	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	*5*	*U*	*5*	*U*
108-90-7	Chlorobenzene	100	730	--	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	*5*	*U*	*5*	*U*
100-41-4	Ethylbenzene	700	3,700	--	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	*5*	*U*	*5*	*U*
179601-23-1	m,p-Xylene	--	--	--	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	*5*	*U*	*5*	*U*
95-47-6	o-Xylene	10,000	--	73,000	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	*5*	*U*	*5*	*U*
100-42-5	Styrene	100	7,300	--	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	*5*	*U*	*5*	*U*
75-25-2	Bromoform	--	--	--	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	*5*	*U*	*5*	*U*
98-82-8	Isopropylbenzene (Cumene)	--	3,700	--	5	U	5	U	5	U	5	U	5	U	5	U	5	U	1.6	J	5	U	5	U	5	U	5	U	*5*	*U*	*5*	*U*
79-34-5	*1,1,2,2-Tetrachloroethane*	--	--	*0.43*	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*	*5*	*U*
541-73-1	1,3-Dichlorobenzene	--	--	--	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	*5*	*U*	*5*	*U*
106-46-7	1,4-Dichlorobenzene	75	--	3.5	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	*5*	*U*	*5*	*U*
95-50-1	1,2-Dichlorobenzene	--	--	--	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	*5*	*U*	*5*	*U*
96-12-8	1,2-Dibromo-3-chloropropane	0.2	--	0.061	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	*5*	*U*	*5*	*U*
120-82-1	1,2,4-Trichlorobenzene	70	360	--	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	*5*	*U*	*5*	*U*
87-61-6	1,2,3-Trichlorobenzene	--	--	--	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	5	U	*5*	*U*	*5*	*U*

[1] MCL/MCLG = Maximum Contaminant Limit / Maximum Contaminant Limit Goal

[2] SCDM Non-Cancer Risk = Superfund Chemical Data Matrix, Screening Concentration for Non-Cancer Toxicological Responses, 1/04.

[3] SCDM Cancer Risk = Screening Concentration for Cancer Risk, 1/04.

Q = Data Qualifier

U = Undetected. Reported value is the detection limit.

J = Reported concentration is an estimated value.

B - Compound was detected in the Method Blank.

D - Reported value for the analyte was reanalyzed from a dilute of the original sample to bring analyte within instrument calibration or to remove matrix interferences.

Observed Contamination

Observed Contamination and exceeds SCDM Benchmark

Table 3. Volatile Organics Data Results for Soil at the 5600 South 900 East Plume.

	Sample #	Superfund Chemical Data Matrix		5600-SO-01		5600-SO-02		5600-SO-03		5600-SO-04		5600-SO-05		5600-SO-06		5600-SO-07		5600-SO-08		5600-SO-09		5600-SO-10		5600-SO-11		5600-SO-12	
	EPA Sample #			H1YP8		H2563		H2564		H2565		H2566		H2567		H2568		H2569		H29Q5		H29Q6		H1YP7		H29Q7	
	Sample Location	Screening Concentration for Non-Cancer Toxicological Responses	Screening Concentration for Cancer	New Howe Well		Red Hanger Cleaners		Jiffy Lube		Southwestern Side of 7-11 Parking Lot		Southeastern Side of 7-11 Parking Lot		Northwestern Side of 7-11 Parking Lot		Northeastern Side of 7-11 Parking Lot		Chase Bank		Highland Dairy Well		5th E Well #3		900 East and Vine Street (Background Sample)		Blind Duplicate Sample Collected from 5600-SO-08	
	Sample Date			12/02/08		12/04/08		12/04/08		12/04/08		12/04/08		12/05/08		12/05/08		12/05/08		12/05/08		12/05/08		12/12/08		12/05/08	
	Sample Time			11:05		12:45		10:35		16:40		14:10		10:25		11:50		9:25		14:35		16:10		09:40		9:25	
	Sample Type	SCDM [1]	SCDM [2]	Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil		Soil	
Cas No.	Analyte	ug/kg	ug/kg	ug/kg	Q	ug/kg	Q	ug/kg	Q	ug/kg	Q	ug/kg	Q	ug/kg	Q	ug/kg	Q	ug/kg	Q	ug/kg	Q	ug/kg	Q	ug/kg	Q	ug/kg	Q
75-71-8	Dichlorodifluoromethane	--	--	6	U	6.1	U	6.2	U	6.5	U	6	U	6.3	U	6	U	6.5	U	6.5	U	8.5	U	7.2	U	6	U
74-87-3	Chloromethane	--	--	6	U	6.1	U	6.2	U	6.5	U	6	U	6.3	U	6	U	6.5	U	6.5	U	8.5	U	7.2	U	6	U
75-01-4	Vinyl Chloride	2.3E+05	4.3E+02	6	U	6.1	U	6.2	U	6.5	U	6	U	6.3	U	6	U	82		6.5	U	8.5	U	7.2	U	20	J
74-83-9	Bromomethane	--	--	6	U	6.1	U	6.2	U	6.5	U	6	U	6.3	U	6	U	6.5	U	6.5	U	8.5	U	7.2	U	6	U
75-00-3	Chloroethane	--	--	6	U	6.1	U	6.2	U	6.5	U	6	U	6.3	U	6	U	6.5	U	6.5	U	8.5	U	7.2	U	6	U
75-69-4	Trichlorofluoromethane	2.3E+07	--	6	U	6.1	U	6.2	U	6.5	U	6	U	6.3	U	6	U	6.5	U	6.5	U	8.5	U	7.2	U	6	U
75-35-4	1,1-Dichloroethene	3.9E+06	--	6	U	6.1	U	6.2	U	6.5	U	6	U	6.3	U	6	U	6.5	U	6.5	U	8.5	U	7.2	U	6	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	--	--	6	U	6.1	U	6.2	U	6.5	U	6	U	6.3	U	6	U	6.5	U	6.5	U	8.5	U	7.2	U	6	U
67-64-1	Acetone	7.0E+07	--	12	U	12	U	12	U	13	U	12	U	13	U	12	U	13	U	13	U	110	J	73		24	
75-15-0	Carbon Disulfide	7.8E+06	--	6	U	6.1	U	6.2	U	6.5	U	6	U	6.3	U	6	U	6.5	U	6.5	U	8.5	U	7.2	U	6	U
79-20-9	Methyl Acetate	--	--	6	U	6.1	U	6.2	U	6.5	U	6	U	6.3	U	6	U	6.5	U	6.5	U	8.5	U	7.2	U	6	U
75-09-2	Methylene Chloride	4.7E+06	8.5E+04	9.3	U	10	U	10	U	6.5	U	6	U	6.3	U	6	U	6.5	U	6.5	U	16	J	13	J	6	U
156-60-5	trans-1,2-Dichloroethene	1.6E+06	--	6	U	6.1	U	6.2	U	6.5	U	6	U	6.3	U	6	U	38		6.5	U	8.5	U	7.2	U	11	
1634-04-4	Methyl-tert-Butyl Ether	--	--	6	U	6.1	U	6.2	U	6.5	U	6	U	6.3	U	6	U	6.5	U	6.5	U	8.5	U	7.2	U	6	U
75-34-3	1,1-Dichloroethane	3.9E+06	--	6	U	6.1	U	6.2	U	6.5	U	6	U	6.3	U	6	U	6.5	U	6.5	U	8.5	U	7.2	U	6	U
156-59-2	cis-1,2-Dichloroethene	7.8E+05	--	6	U	1.3	J	6.2	U	6.5	U	6	U	1.1	J	6	U	920		2.1	J	8.5	U	7.2	U	630	
78-93-3	2-Butanone (MEK)	4.7E+07	--	12	U	12	U	12	U	13	U	12	U	13	U	12	U	13	U	13	U	35	J	14	U	12	U
74-97-5	Bromochloromethane	--	--	6	U	6.1	U	6.2	U	6.5	U	6	U	6.3	U	6	U	6.5	U	6.5	U	8.5	U	7.2	U	6	U
67-66-3	Chloroform	7.8E+05	--	6	U	6.1	U	6.2	U	12		6	U	6.3	U	6	U	6.5	U	6.5	U	8.5	U	7.2	U	6	J
71-55-6	1,1,1-Trichloroethane	--	--	6	U	6.1	U	6.2	U	6.5	U	6	U	6.3	U	6	U	6.5	U	6.5	U	8.5	U	7.2	U	6	U
110-82-7	Cyclohexane	--	--	6	U	6.1	U	6.2	U	6.5	U	6	U	6.3	U	6	U	14		6.5	U	8.5	U	7.2	U	5.5	J
56-23-5	Carbon Tetrachloride	5.5E+04	4.9E+03	6	U	6.1	U	6.2	U	6.5	U	6	U	6.3	U	6	U	6.5	U	6.5	U	8.5	U	7.2	U	6	U
71-43-2	Benzene	3.1E+05	1.2E+04	6	U	6.1	U	6.2	U	6.5	UJ	6	U	6.3	U	6	U	6.5	U	6.5	U	8.5	U	7.2	U	6	U
107-06-2	1,2-Dichloroethane	--	7.5E+00	6	U	6.1	U	6.2	U	6.5	U	6	U	6.3	U	6	U	6.5	U	6.5	U	8.5	U	7.2	U	6	U
123-91-1	1,4-Dioxane	--	--	120	U	120	U	120	U	130	U	120	U	130	U	120	U	130	U	130	U	170	U	140	U	120	U
79-01-6	Trichloroethene (TCE)	--	5.8E+04	6	U	6.1	U	6.2	U	6.5	U	6	U	6.3	U	6	U	6.5	U	6.5	U	8.5	U	7.2	U	6	U
108-87-2	Methylcyclohexane	--	--	6	U	6.1	U	6.2	U	220		6	U	6.3	U	6	U	3.6	J	6.5	U	8.5	U	7.2	U	1.3	J
78-87-5	1,2-Dichloropropane	--	9.4E+03	6	U	6.1	U	6.2	U	6.5	U	6	U	6.3	U	6	U	6.5	U	6.5	U	8.5	U	7.2	U	6	U
75-27-4	Bromodichloromethane	1.6E+06	1.0E+04	6	U	6.1	U	6.2	U	6.5	U	6	U	6.3	U	6	U	6.5	U	6.5	U	8.5	U	7.2	U	6	U
10061-01-5	cis-1,3-Dichloropropene	--	--	6	U	6.1	U	6.2	U	6.5	U	6	U	6.3	U	6	U	6.5	U	6.5	U	8.5	U	7.2	U	6	U
108-10-1	4-Methyl-2-Pentanone	6.3E+06	--	12	U	12	U	12	U	13	U	12	U	13	U	12	U	13	U	13	U	17	U	14	U	12	U
108-88-3	Toluene	1.6E+07	--	6	U	6.1	U	6.2	U	6.5	U	6	U	6.3	U	6	U	8.1		6.5	U	8.5	U	0.36	J	2.5	J
10061-02-6	trans-1,3-Dichloropropene	--	--	6	U	6.1	U	6.2	U	6.5	U	6	U	6.3	U	6	U	6.5	U	6.5	U	8.5	U	7.2	U	6	U
79-00-5	1,1,2-Trichloroethane	3.1E+05	1.1E+04	6	U	6.1	U	6.2	U	6.5	U	6	U	6.3	U	6	U	6.5	U	6.5	U	8.5	U	7.2	U	6	U
127-18-4	Tetrachloroethene	7.8E+05	1.2E+04	6	U	6.1	U	6.2	U	6.5	U	6	U	6.3	U	6	U	6.5	J	6.5	U	8.5	U	7.2	U	6	U
591-78-6	2-Hexanone	--	--	12	U	12	U	12	U	13	U	12	U	13	U	12	U	13	U	13	U	17	U	14	U	12	U
124-48-1	Dibromochloromethane	--	--	6	U	6.1	U	6.2	U	6.5	U	6	U	6.3	U	6	U	6.5	U	6.5	U	8.5	U	7.2	U	6	U
106-93-4	1,2-Dibromoethane	--	--	6	U	6.1	U	6.2	U	6.5	U	6	U	6.3	U	6	U	6.5	U	6.5	U	8.5	U	7.2	U	6	U
108-90-7	Chlorobenzene	1.6E+06	--	6	U	6.1	U	6.2	U	6.5	U	6	U	6.3	U	6	U	6.5	U	6.5	U	8.5	U	7.2	U	6	U
100-41-4	Ethylbenzene	7.8E+06	--	6	U	6.1	U	6.2	U	6.5	U	6	U	6.3	U	6	U	6.9		6.5	U	8.5	U	7.2	U	6	U
95-47-6	o-Xylene	--	--	6	U	6.1	U	6.2	U	17		6	U	6.3	U	6	U	6.5	U	6.5	U	8.5	U	7.2	U	1.5	J
179601-23-1	m,p-Xylene	--	--	6	U	6.1	U	6.2	U	33		6	U	6.3	U	6	U	6.5	U	6.5	U	8.5	U	7.2	U	1.6	J
100-42-5	Styrene	1.6E+07	--	6	U	6.1	U	6.2	U	6.5	U	6	U	6.3	U	6	U	6.5	U	6.5	U	8.5	U	7.2	U	6	U
75-25-2	Bromoform	--	--	6	U	6.1	U	6.2	U	6.5	U	6	U	6.3	U	6	U	6.5	U	6.5	U	8.5	U	7.2	U	6	U
98-82-8	Isopropylbenzene (Cumene)	--	--	6	U	6.1	U	6.2	U	5.2	J	6	U	6.3	U	6	U	1.3	J	6.5	U	8.5	U	7.2	U	6	U
79-34-5	1,1,2,2-Tetrachloroethane	--	3.2E+03	6	U	6.1	U	6.2	U	6.5	U	6	U	6.3	U	6	U	6.5	U	6.5	U	8.5	U	7.2	U	6	U
541-73-1	1,3-Dichlorobenzene	--	--	6	U	6.1	U	6.2	U	6.5	U	6	U	6.3	U	6	U	6.5	U	6.5	U	8.5	U	7.2	U	6	U
106-46-7	1,4-Dichlorobenzene	--	2.7E+04	6	U	6.1	U	6.2	U	6.5	U	6	U	6.3	U	6	U	6.5	U	6.5	U	8.5	U	7.2	U	6	U
95-50-1	1,2-Dichlorobenzene	--	--	6	U	6.1	U	6.2	U	6.5	U	6	U	6.3	U	6	U	6.5	U	6.5	U	8.5	U	7.2	U	6	U
96-12-8	1,2-Dibromo-3-chloropropane	--	4.6E+02	6	U	6.1	U	6.2	U	6.5	U	6	U	6.3	U	6	U	6.5	U	6.5	U	8.5	U	7.2	U	6	U
120-82-1	1,2,4-Trichlorobenzene	7.8E+05	--	6	U	6.1	U	6.2	U	6.5	U	6	U	6.3	U	6	U	6.5	U	6.5	U	8.5	U	7.2	U	6	U
87-61-6	1,2,3-Trichlorobenzene	--	--	6	U	6.1	U	6.2	U	6.5	U	6	U	6.3	U	6	U	6.5	U	6.5	U	8.5	U	7.2	U	6	U

[1]SCDM Non-Cancer Risk = Superfund Chemical Data Matrix, Screening Concentration for Non-Cancer Toxicological Responses, 1/04.
[2]SCDM Cancer Risk = Screening Concentration for Cancer Risk, 1/04.

Q = Data Qualifier
U = Undetected. Reported value is the detection limit.
J = Reported concentration is an estimated value.
B - Compound was detected in the Method Blank.

Observed Contamination
Observed Contamination and exceeds SCDM Benchmark

Appendices

Appendix A

Field Activities Report and Site Photographs

FIELD ACTIVITIES REPORT
5600 South 900 East Plume
December 2-5, 2008

1.0 INTRODUCTION

Sampling activities were conducted by the Utah Department of Environmental Quality/Division of Environmental Response and Remediation (UDEQ/DERR) at the 5600 South 900 East Plume Site from December 2-5, 2008 to assess the site for threats to human health and the environment resulting from the potential release of hazardous materials. This sampling was performed as part of a Site Inspection conducted by DERR and performed for the U.S. Environmental Protection Agency (EPA). Samples were collected from predetermined locations and media to document the presence or absence of contamination and assess the likelihood of potential off-site contamination migration. Work was conducted under the authority of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), in accordance with the National Oil and Hazardous Substances Contingency Plan (NCP).

Sampling was performed by DERR staff members Kim Viehweg and Hans Millican. The EPA START crew that operated the hydraulic direct-push probe was Henry Schmelzer and Jake Moersen of URS Corporation.

2.0 SITE DESCRIPTION

The 5600 South 900 East Plume Site is located approximately 14 miles south of Salt Lake City in Murray, Utah. The Site was discovered during a subsurface investigation that was performed in connection with a Leaking Underground Storage Tank (LUST) closure at a 7-11 store located at 5585 South 900 East, Murray, Utah. As part of the subsurface investigation, groundwater sampling was conducted and analyzed for Volatile Organic Compounds (VOCs). Elevated levels of tetrachloroethene (PCE), trichloroethene (TCE), cis-1,2-dichloroethene (cis-1,2-DCE), and vinyl chloride (VC) were detected. Although the source of the plume has not been ascertained, potential sources include one currently operating dry cleaner, one historic dry cleaner and two auto repair shops in the immediate vicinity of the Site. There are other potential but less likely sources due to their increased distance and downgradient location from the Site. These include a dry cleaner, an auto lube shop, an auto repair shop, a historic tire store, and a historic gas station. The nearest municipal well owned by the City of Murray, New Howe well, is located approximately 360 feet southeast of the plume site. The Site is also located 0.5 miles west and south of Little Cottonwood Creek.

3.0 SCOPE OF WORK

The scope of work was based on a Work Plan finalized by DERR and the EPA on September 23, 2008. It involved the collection of 11 groundwater, 11 subsurface soil samples, two trip blanks, and one extra groundwater sample that was not originally part of the SI Work Plan. Access to the Site was arranged prior to sampling. Landowners signed a DERR "Grant of Access to Property" form. A health and safety briefing was held for the DERR personnel and the EPA

START contractors on the first day of sampling and another briefing was performed for personnel from the Salt Lake Valley Health Department on the third day of sampling. No safety issues or problems were encountered during the sampling event.

Groundwater samples were collected using a hydraulic direct-push probe to extract groundwater once the water table was reached. Groundwater ranged anywhere from 7 – 12 feet below ground surface (bgs). Generally, an aqueous (groundwater) sample collected for VOC analysis is contained in two 40-milliliter vials preserved with hydrochloric acid and filled in a manner in which allows no head space to remain and a soil sample analyzed for VOCs is contained in a four-ounce glass jar with no preservative. That is the procedure that was followed during this sampling event. A trip blank was prepared using deionized water prior to leaving the DERR offices and was carried in the cooler during the entirety of the sampling event. Decontamination of boring equipment between probe borings was performed as necessary by the EPA START crew. All investigation-derived material was collected and disposed of in accordance with state and federal regulations and guidelines. Disposable sampling equipment was removed from the Site and disposed of as non-hazardous. Excess sample material was returned to its original location, as per the RCRA Groundwater Monitoring Technical Enforcement Guidance Document. QA/QC samples included two trip blanks on the first and second days of sampling, one groundwater field duplicate, one soil field duplicate, a groundwater lab duplicate, and a soil lab duplicate.

All samples were placed into ice chests and preserved by cooling with ice to 4° Celsius, retained under chain-of-custody as prescribed by DERR CERCLA Quality Assurance Project Plan (QAPP) of May 1999, and shipped overnight via FedEx to A4 Scientific Laboratory in The Woodlands, Texas. An extra groundwater sample was shipped via FedEx to TestAmerica in Denver, Colorado. Field notes and photographs were taken to document the sampling event and are included in this report, as are copies of the chains-of-custody and the signed "Grant of Access to Property" forms.

4.0 FIELD ACTIVITIES

TUESDAY, DECEMBER 2, 2008

07:30 – A QA/QC trip blank sample was collected with deionized water at the DERR offices and preserved with HCl for the first day of sampling. The sample was collected by Kim Viehweg.

08:00 – Kim Viehweg met Henry Schmelzer and Jake Moersen, EPA START crew, at the Red Hanger Cleaners and proceeded from there to the site of borehole number one. Weather conditions were cool and overcast with temperatures in the 40-50°F.

Borehole Number One:

08:15 – Hans Millican on-site. This site was located in a dirt field near the intersection of 900 East and Vine Street. A health and safety briefing was conducted by Kim Viehweg and signatures were obtained.

09:35 – Groundwater sample 5600-GW-11 was collected as a background sample. Little Cottonwood Creek is located about 90 feet south of this borehole site. Depth to water (DTW) was approximately 7 feet bgs.

09:40 – Soil sample 5600-SO-11 was collected as a background sample. Photo 1 was taken at this site.

Borehole Number Two:

10:40 – Photo 2 was taken at the New Howe well borehole site.

11:05 – Soil sample 5600-SO-01 was collected at New Howe Well. MS/MSD was also collected at this location. DTW was approximately 10 feet bgs.

11:30 – A problem was encountered with the hydraulics of the drill rig causing a delay of the sampling event. Weather conditions were mild, sunny and approximately 60°F.

14:45 – Henry Schmelzer informed me that the drill rig could not be repaired on-site. He decided that he and Mr. Moersen would fly to Billings, Montana where a second drill rig was located and drive it down to the Salt Lake City area. This was to be done on Wednesday, December 3, 2008 and sampling would resume on Thursday, December 4, 2008.

THURSDAY, DECEMBER 4, 2008

07:30 – A QA/QC trip blank sample was collected with deionized water at the DERR offices and preserved with HCl for the second day of sampling. The sample was collected by Kim Viehweg.

Borehole Number Two:

08:00 – Kim Viehweg arrived on-site to resume sampling. Weather conditions were cold and overcast.

08:15 – Henry Schmelzer and Jake Moersen arrived on-site with the new drill rig and began setting up.

09:05 – Groundwater sample 5600-GW-01 was collected. MS/MSD was also collected at this location. Water depth measurement was taken with a sounder and was recorded at 10.5 feet bgs. Hans Millican arrived on-site.

09:55 – A storm passed through the area with mixed rain and snow for 10-15 minutes. After the storm passed, weather conditions became sunny and warm with temperatures in the mid 50's.

Borehole Number Three:

10:05 – Photo 3 was taken of the Jiffy Lube borehole site.

10:35 – Soil sample 5600-SO-03 was collected at approximately 8 feet bgs.

10:45 – Groundwater sample 5600-GW-03 was collected. DTW was approximately 10 feet bgs.

Borehole Number Four:

11:15 – Because DTW was 10 feet bgs at Jiffy Lube, a call was made to Brad Overmoe to elicit permission to drill deeper than 9 feet bgs at the Red Hanger Cleaner site as it was stipulated in the "Grant of Access to Property" form that drilling would not go deeper than 9 feet bgs. He gave verbal permission to drill to 10 feet bgs.

12:45 – Soil sample 5600-SO-02 was collected at about 8 feet bgs. Photo 4 was taken of the activities at the Red Hanger Cleaners borehole site.

13:10 – Groundwater sample 5600-SO-02 was collected. DTW was approximately 9.1 feet bgs.

Borehole Number Five:

14:10 – Soil sample 5600-SO-05 was collected in the southeast corner of the 7-11 parking lot at about 7.5 feet bgs.

14:25 – Photo 5 was taken of this borehole site.

15:20 – Groundwater sample 5600-GW-05 was taken from a second borehole that was drilled a few inches from the first borehole. It was necessary to drill the second borehole when the drill hit a rock that plugged the coring tip on the first borehole. DTW was approximately 10 feet.

Borehole Number Six:

16:05 – The EPA START team informed me that a black oily substance was encountered at 8-12 feet. Photo 6 shows this substance within the core.

16:30 – An extra groundwater sample labeled 5600-GW-13 was collected from one of the cores where the black oily substance was found. This sample was not part of the SI Work Plan.

16:40 – Soil sample 5600-SO-04 was collected where the soil was stained the darkest in color at about 8-8.5 feet bgs located in the southwest corner of the 7-11 parking lot. While collecting this soil sample, a strong petroleum odor was detected.

16:46 – Groundwater sample 5600-GW-04 was collected by Hans Millican at approximately 10 feet bgs. Photo 7 shows the darkly stained soil after the core had been cut open.

FRIDAY, DECEMBER 5, 2008

Borehole Number Seven:

08:00 – On site with Henry Schmelzer and Jake Moersen to resume sampling at Chase Bank. Weather conditions are clear, sunny, and cold with temperatures in the 30s.

08:25 – Jesse Millen-Johnson from the Salt Lake Valley Health Department arrives on-site to observe the sampling event for training purposes. A health and safety briefing was conducted by Kim Viehweg and Henry Schmelzer for Mr. Millen-Johnson and his signature was obtained.

09:05 – Photo 8 was taken of the Chase Bank borehole.

09:25 – Soil sample 5600-SO-08 was collected at about 8 feet bgs. A lab duplicate labeled 5600-SO-12 was also collected at this location.

09:40 – Groundwater sample 5600-GW-08 was collected at about 8.5 bgs. A lab duplicate labeled 5600-GW-12 was also collected at this location.

Borehole Number Eight:

10:10 – Henry Schmelzer informed me that he encountered a black oily substance while sampling in the northwest corner of the 7-11 parking lot. This substance is similar in nature to the substance found at borehole number six although not as pronounced.

10:25 – Soil sample 5600-SO-06 was collected at about 8-9 feet bgs where the soil was darkly stained. A petroleum odor was detected while collecting this soil sample. Photo 9 was taken of the soil after the core had been cut open.

10:40 – Groundwater sample 5600-GW-06 was collected. DTW was approximately 8 feet bgs.

Borehole Number Nine:

11:00 – Photo 10 was taken of the borehole activities in a grassy field in the northeast corner of the 7-11 property.

11:50 – Soil sample 5600-SO-07 was collected at about 9 feet bgs.

11:59 – Groundwater sample 5600-GW-07 was collected. DTW was approximately 10 feet bgs.

Borehole Number Ten:

13:20 – Photo 11 was taken of the borehole at Highland Dairy Well.

13:45 – Henry Schmelzer informed me that he drilled down to 10 feet bgs and encountered only gravel so he relocated the drill rig about 50 feet north and downhill towards the street and drilled another borehole.

14:30 – DTW was measured with a sounder and was recorded at 12 feet bgs.

14:35 – Soil sample 5600-SO-09 was collected at about 11.5 feet bgs. Most of this sample consisted of clay.

14:45 – Groundwater sample 5600-GW-09 was collected.

Borehole Number Eleven:

15:30 – Photo 12 was taken of the borehole located at 5th E Well #3.

16:05 – Groundwater sample 5600-GW-10 was collected. DTW was approximately 6 feet bgs.

16:10 – Soil sample 5600-SO-10 was obtained. This sample consisted mostly of clay.

5.0 SAMPLE PREPARATION

At the DERR offices, the samples were prepared and shipped per CLP instructions under Case Number 38043 on December 3, 2008 and December 8, 2008. Organic samples were shipped via FedEx to A4 Scientific in The Woodlands, Texas and one inorganic sample was shipped via FedEx to Test America in Arvada, Colorado.

6.0 PHOTOGRAPHS

See attached.

7.0 CONCLUSIONS

All of the sampling objectives for the site were met.

Photo 1: Background samples were collected at borehole number one located at 900 East and Vine Street.

Photo 2: Borehole number two was located at the New Howe well.

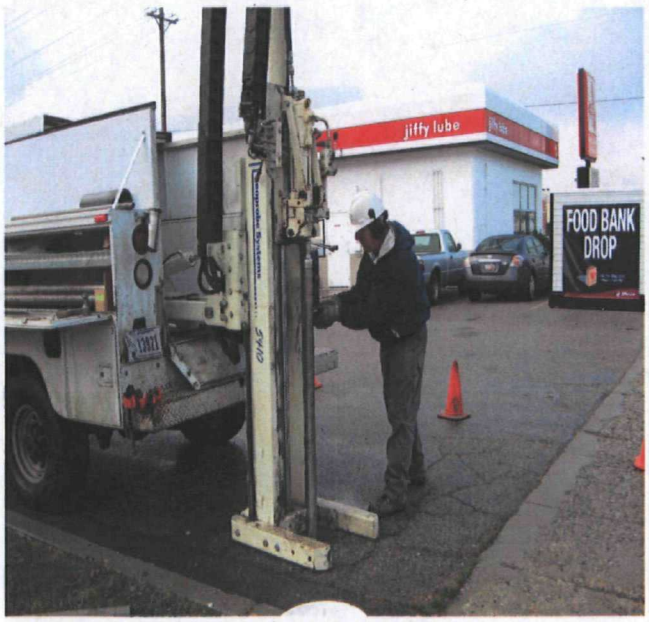


Photo 3: Borehole number three was located at Jiffy Lube.

Photo 4: Borehole number four was located at the Red Hanger Cleaners.

Photo 5: Borehole number five was located at the southeast corner of the 7-11 parking lot.

Photo 6: A black oily substance was found at borehole number six located at the southwest corner of the 7-11 parking lot.

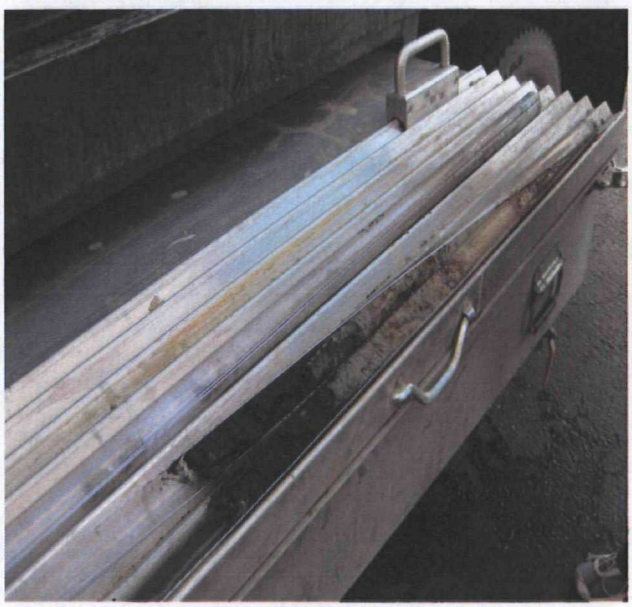


Photo 7: Borehole number six shows darkly stained soil within the core.

Photo 8: Borehole number seven was located at the Chase Bank.

Photo 9: Borehole number eight located at the northwest corner of the 7-11 parking lot shows darkly stained soil.

Photo 10: Borehole number nine was located in a grassy field in the northeast corner of the 7-11 property.

Photo 11: Borehole number ten was located at the Highland Dairy Well.

Photo 12: Borehole number eleven was located at the 5th E Well #3.

Appendix B

Grant of Access to Property Forms

GRANT OF ACCESS TO PROPERTY

Overmoe Group The is the owner ("Owner") of record, title holder or authorized agent for the record owner of certain real property located at 926 E 5600 S, Murray, Utah [Parcel no. **22171770030000**] ("Property").

The Owner hereby grants to the officers, employees, authorized representatives, and consultants of the Utah Division of Environmental Response and Remediation ("DERR") access, including ingress and egress, to the Property for the following purposes:

- the drilling of one borehole to a depth of 8-9 feet below ground surface with a probe rig;
- the collection of soil and ground water from this borehole; and
- the taking of photographs of sample locations.

The expected timeframe for this operation would reasonably be 2 to 3 hours, and would occur either on a grassy strip of lawn or in a corner of the parking lot. After sampling, the borehole would be appropriately backfilled to its original condition. Prior to boring, the site would be surveyed for the presence of any utility and/or fuel lines to avoid hitting any underground lines during the investigation. All attempts will be made to avoid impacting business traffic and parking during the boring operation.

I understand that these actions by UDEQ are undertaken pursuant to its responsibilities under the Utah Environmental Quality Code, Sections 19-1-101 *et seq.* and 19-6-301 *et seq.*, and the U.S. Comprehensive Environmental Response, Compensation, and Liability Act (Superfund), 42 U.S.C. s. 9601, *et seq.*

By granting access to the DERR, I make no admission of liability or responsibility for any contamination, which may be found on the Property. This written permission is provided voluntarily with knowledge of my right to refuse access. I further acknowledge that no promises, representations or claims of any kind, either written or oral have been made by the DERR to induce my consent.

Brad H Overmoe — (Owner's Signature)

Pres. — (Title)

Brad J. Overmoe — (Printed Name)

10-1-08 — (Date)

Please sign and return via mail or fax to:
Kim Viehweg
Utah Department of Environmental Quality
P.O. Box 144840, SLC, UT 84114-4840
Phone 801-536-4161 / fax: 801-536-4242
Email: kviehweg@utah.gov

Telephone# (801) 355-6975

GRANT OF ACCESS TO PROPERTY

Siebert, Ralph H. Family Ltd. is the owner ("Owner") of record, title holder or authorized agent for the record owner of certain real property located at 5585 S 900 E, Murray, Utah [Parcel nos. **22171270290000 and 22171270080000**] ("Property"), subject to a Lease Agreement in favor of 7-Eleven, Inc. as lessee of a portion of the Property, and a Lease in favor of Fisher's Creative Car Care, Inc. and David Fisher as lessees of a portion of the Property.

Subject to the existing leases, the Owner hereby grants to the officers, employees, authorized representatives, and consultants of the Utah Division of Environmental Response and Remediation ("DERR") access, including ingress and egress, to the Property for a period of six (6) months from after the date hereof for the following purposes:

- the drilling of four boreholes with a probe rig;
- the collection of soil and ground water from these boreholes; and
- the taking of photographs of sample locations.

The expected timeframe for this operation would reasonably be 2 to 3 hours per borehole, and would occur either on a grassy strip of lawn or in a corner of the parking lot. After sampling, the boreholes will be appropriately backfilled and restored to their original condition. Prior to boring, the site will be surveyed for the presence of any utility and/or fuel lines to avoid hitting any underground lines during the investigation. All attempts will be made to avoid impacting business traffic and parking during the boring operation.

DERR will provide Owner with copies of any reports and laboratory analytical results obtained by DERR from sampling conducted on the Property under this Grant of Access.

I understand DERR contends these actions are undertaken by it pursuant to its responsibilities under the Utah Environmental Quality Code, Sections 19-1-101 *et seq.* and 19-6-301 *et seq.*, and the U.S. Comprehensive Environmental Response, Compensation, and Liability Act (Superfund), 42 U.S.C. s. 9601 *et seq.*

By granting access to the DERR, I make no admission of liability or responsibility for any contamination, which may be found on the Property. This written permission is provided voluntarily with knowledge of my right to refuse access. I further acknowledge that no promises, representations or claims of any kind, either written or oral have been made by the DERR to induce my consent.

Ralph L Siebert

(Owner's Signature) (Title)

RALPH SIEBERT 10-22-2008

(Printed Name) (Date)

GRANT OF ACCESS TO PROPERTY

Forest Creek Complex II is the owner ("Owner") of record, title holder or authorized agent for the record owner of certain real property located at 5888 S 900 E, Murray, Utah [Parcel no. **22173270100000** ("Property").

The Owner hereby grants to the officers, employees, authorized representatives, and consultants of the Utah Division of Environmental Response and Remediation ("DERR") access, including ingress and egress, to the Property for the following purposes:

- the drilling of one borehole with a probe rig;
- the collection of soil and ground water from this borehole; and
- the taking of photographs of sample locations.

The expected timeframe for this operation would reasonably be 2 to 3 hours, and would occur either on a grassy strip of lawn or in a corner of the parking lot. After sampling, the borehole would be appropriately backfilled to its original condition. Prior to boring, the site would be surveyed for the presence of any utility and/or fuel lines to avoid hitting any underground lines during the investigation. All attempts will be made to avoid impacting business traffic and parking during the boring operation.

I understand that these actions by UDEQ are undertaken pursuant to its responsibilities under the Utah Environmental Quality Code, Sections 19-1-101 *et seq.* and 19-6-301 *et seq.*, and the U.S. Comprehensive Environmental Response, Compensation, and Liability Act (Superfund), 42 U.S.C. s. 9601, *et seq.*

By granting access to the DERR, I make no admission of liability or responsibility for any contamination, which may be found on the Property. This written permission is provided voluntarily with knowledge of my right to refuse access. I further acknowledge that no promises, representations or claims of any kind, either written or oral have been made by the DERR to induce my consent.

(Owner's Signature)

Forest Creek Complex II LC
(Title)

Greg Watts
(Printed Name)

9/14/08
(Date)

Please sign and return via mail or fax to:
Kim Viehweg
Utah Department of Environmental Quality
P.O. Box 144840, SLC, UT 84114-4840
Phone 801-536-4161 / fax: 801-536-4242
Email: kviehweg@utah.gov

Telephone# (801) 272-2452

Approved as to the availability of funds
Murray City Finance Division
Pat Wilson
Budget Officer

GRANT OF ACCESS TO PROPERTY

Murray City Corporation is the owner ("Owner") of record, title holder or authorized agent for the record owner of certain real property located at 942 E 5650 S, Murray, Utah [Parcel nos. **22171770180000 and 22171770190000**], 702 E Vine Street, Murray, Utah [Parcel no. **22083510120000**], and 5310 S 550 E, Murray, Utah [Parcel no. **22074820040000**] ("Properties").

The Owner hereby grants to the officers, employees, authorized representatives, and consultants of the Utah Division of Environmental Response and Remediation ("DERR") access, including ingress and egress, to the Property for the following purposes:

- the drilling of three boreholes with a probe rig;
- the collection of soil and ground water from these boreholes; and
- the taking of photographs of sample locations.

The expected timeframe for this operation would reasonably be 2 to 3 hours per borehole, and would occur either on a grassy strip of lawn or in a corner of the parking lot. After sampling, the boreholes would be appropriately backfilled to their original condition. Prior to boring, the site would be surveyed for the presence of any utility and/or fuel lines to avoid hitting any underground lines during the investigation. All attempts will be made to avoid impacting business traffic and parking during the boring operation.

I understand that these actions by UDEQ are undertaken pursuant to its responsibilities under the Utah Environmental Quality Code, Sections 19-1-101 *et seq.* and 19-6-301 *et seq.*, and the U.S. Comprehensive Environmental Response, Compensation, and Liability Act (Superfund), 42 U.S.C. s. 9601, *et seq.*

By granting access to the DERR, I make no admission of liability or responsibility for any contamination, which may be found on the Property. This written permission is provided voluntarily with knowledge of my right to refuse access. I further acknowledge that no promises, representations or claims of any kind, either written or oral have been made by the DERR to induce my consent.

(Owner's Signature) (Title)

ATTEST
Murray City Recorders Office

(Printed Name) 10/24/08 (Date)

MURRAY CITY, STATE OF UTAH ★ CORPORATE SEAL ★

Please sign and return via mail or fax to:
Kim Viehweg
Utah Department of Environmental Quality
P.O. Box 144840, SLC, UT 84114-4840
Phone 801-536-4161 / fax: 801-536-4242
Email: kviehweg@utah.gov

Telephone# (801) 264-2600

APPROVED AS TO CONTENT

APPROVED AS TO FORM
Murray City Attorneys Office

GRANT OF ACCESS TO PROPERTY

Oilwell Properties is the owner ("Owner") of record, title holder or authorized agent for the record owner of certain real property located at 5601 S 900 E, Murray, Utah [Parcel no. **22171770270000**] ("Property").

The Owner hereby grants to the officers, employees, authorized representatives, and consultants of the Utah Division of Environmental Response and Remediation ("DERR") access, including ingress and egress, to the Property for the following purposes:

- the drilling of one borehole with a probe rig;
- the collection of soil and ground water from this borehole; and
- the taking of photographs of sample locations.

The expected timeframe for this operation would reasonably be 2 to 3 hours, and would occur either on a grassy strip of lawn or in a corner of the parking lot. After sampling, the borehole would be appropriately backfilled to its original condition. Prior to boring, the site would be surveyed for the presence of any utility and/or fuel lines to avoid hitting any underground lines during the investigation. All attempts will be made to avoid impacting business traffic and parking during the boring operation.

I understand that these actions by UDEQ are undertaken pursuant to its responsibilities under the Utah Environmental Quality Code, Sections 19-1-101 *et seq.* and 19-6-301 *et seq.*, and the U.S. Comprehensive Environmental Response, Compensation, and Liability Act (Superfund), 42 U.S.C. s. 9601, *et seq.*

By granting access to the DERR, I make no admission of liability or responsibility for any contamination, which may be found on the Property. This written permission is provided voluntarily with knowledge of my right to refuse access. I further acknowledge that no promises, representations or claims of any kind, either written or oral have been made by the DERR to induce my consent.

(Owner's Signature)

Manager
(Title)

Robin D. McCullagh
(Printed Name)

9-17-08
(Date)

Please sign and return via mail or fax to:
Kim Viehweg
Utah Department of Environmental Quality
P.O. Box 144840, SLC, UT 84114-4840
Phone 801-536-4161 / fax: 801-536-4242
Email: kviehweg@utah.gov

Telephone# (801) 224-4634

RECEIVED
SEP 17 2008
DERR
ENVIRONMENTAL RESPONSE & REMEDIATION
ENTERED

GRANT OF ACCESS TO PROPERTY

Valley Bank Inv Co is the owner ("Owner") of record, title holder or authorized agent for the record owner of certain real property located at 5561 S 900 E, Murray, Utah [Parcel no. **22171270230000**] ("Property").

The Owner hereby grants to the officers, employees, authorized representatives, and consultants of the Utah Division of Environmental Response and Remediation ("DERR") access, including ingress and egress, to the Property for the following purposes:

- the drilling of one borehole with a probe rig;
- the collection of soil and ground water from this borehole; and
- the taking of photographs of sample locations.

The expected timeframe for this operation would reasonably be 2 to 3 hours, and would occur either on a grassy strip of lawn or in a corner of the parking lot. After sampling, the borehole would be appropriately backfilled to its original condition. Prior to boring, the site would be surveyed for the presence of any utility and/or fuel lines to avoid hitting any underground lines during the investigation. All attempts will be made to avoid impacting business traffic and parking during the boring operation.

I understand that these actions by UDEQ are undertaken pursuant to its responsibilities under the Utah Environmental Quality Code, Sections 19-1-101 *et seq.* and 19-6-301 *et seq.*, and the U.S. Comprehensive Environmental Response, Compensation, and Liability Act (Superfund), 42 U.S.C. s. 9601, *et seq.*

By granting access to the DERR, I make no admission of liability or responsibility for any contamination, which may be found on the Property. This written permission is provided voluntarily with knowledge of my right to refuse access. I further acknowledge that no promises, representations or claims of any kind, either written or oral have been made by the DERR to induce my consent.

K. Scott Witt — (Owner's Signature)

AVP. Real Estate Chase. — (Title)

K. Scott Witt — (Printed Name)

9/18/08 — (Date)

Please sign and return via mail or fax to:

Kim Viehweg
Utah Department of Environmental Quality
P.O. Box 144840, SLC, UT 84114-4840
Phone 801-536-4161 / fax: 801-536-4242
Email: kviehweg@utah.gov

Telephone# (801) 940-1424

Appendix C

EPA START Team's Trip Report

URS OPERATING SERVICES

1099 18TH STREET
SUITE 710
DENVER, COLORADO 80202-1908
TEL: (303) 291-8200
FAX: (303) 291-8296

December 29, 2008

Gwen Christiansen
Site Assessment Manager
U.S. Environmental Protection Agency, Region 8
Mail Code: 8EPR-B
1595 Wynkoop Street
Denver, Colorado 80202-1129

SUBJECT: START 3, EPA Region 8, Contract No. EP-W-05-050, TDD No. 0811-02
Trip Report, 5600 South 900 East Plume, Murray, Utah.

Dear Ms. Christiansen:

Attached is one copy of the draft trip report of the CERCLA site assessment conducted at the 5600 South 900 East Plume site in Murray, Utah. Field activities were conducted from December 2 through 5, 2008. This document is submitted for your review and approval.

If you have any questions, please call me at 303-291-8241.

Sincerely,

URS OPERATING SERVICES, INC.

Henry Schmelzer
Project Manager

cc: Charles W. Baker/UOS (w/o attachment)
File/UOS

EPA ACTION BLOCK

- (X) Approved
- ( ) Approved, TDD to follow
- ( ) Approved as corrected
- ( ) Disapproved
- ( ) Review with _____
- ( ) Original to _____
- ( ) Copy to
- ( ) Reply envelope enclosed

11/14/08
Date By Gwen Christiansen

TRIP REPORT
5600 SOUTH 900 EAST PLUME
Murray, Salt Lake County, Utah

1.0 INTRODUCTION

URS Operating Services, Inc. (UOS), was tasked by the Environmental Protection Agency (EPA), under the Superfund Technical Assessment and Response Team 3 (START) contract # EP-W-05-050 Technical Direction Document (TDD) No. 0811-02, to provide technical support to the Utah Department of Environmental Quality (UDEQ) in conjunction with a site assessment associated with a potential release to groundwater in Murray, Utah. Specifically, START was tasked to provide geotechnical services to assist in obtaining subsurface soil and groundwater samples from eleven possible sampling locations in the area. Field activities followed the applicable UOS Technical Standard Operating Procedures (TSOPs) and the Emergency Response Program generic Quality Assurance Project Plan (URS Operating Services, Inc. (UOS) 2005; UOS 1999).

The plume is located at 5600 South 900 East in Murray, Salt Lake County, Utah (Figure 1).

Site activities related to this response were conducted on December 2 through 5, 2008, and included the collection of continuous soil cores to approximately 16 feet below ground surface (bgs) and the installation of a temporary well at each location so that the groundwater could be sampled for volatile organic compounds (VOCs) by representatives from UDEQ.

2.0 BACKGROUND

The purpose of this site activity was to assist the UDEQ with sampling in association with a reported possible groundwater contamination plume with dry cleaning solvents.

According to Kim Viehweg, the UDEQ site manager for this project, the 7-Eleven convenience store located at 5585 South 900 East had underground storage tanks associated with a fueling station. These tanks were removed and the shallow groundwater was sampled as part of the removal process. Analysis of the samples submitted to the laboratory found VOCs typically used in the dry cleaning process in the shallow groundwater aquifer. Red Hanger Cleaners had a former operation located at 5555 South 900 East where a Pizza Hut now occupies the building. This is immediately adjacent to the 7-Eleven property on the north side of that property. Red Hanger Cleaners currently operates a facility across 5600 South to

the south of the 7-Eleven property. In order for UDEQ to determine the sources of the VOCs this site assessment was instituted. Of particular concern is the fact that a municipal water supply well is located less than 75 yards to south of the new Red Hanger Cleaners location. Two other municipal water supply wells are also located less than a mile from and downgradient of the site.

In order to facilitate the necessary sampling, UDEQ requested assistance from EPA in providing the geotechnical equipment and operators to obtain subsurface soil and groundwater samples. START was issued a TDD by Gwen Christiansen of EPA in order to fulfill this request. Ten possible sampling locations were identified both upgradient and downgradient of the known location of the contaminants (Figures 2 and 2A). Site access was arranged at each location to allow for the collection of soil and groundwater samples.

3.0 SITE ACTIVITIES

START members Henry Schmelzer and Jake Moersen mobilized with the PowerProbe® to the site from Denver, Colorado, on December 1, 2008. They met Kim Viehweg from UDEQ at the new Red Hanger Cleaners site at 0800 hours on the morning of December 2, 2008. Weather at the time was cloudy with the temperature near 50 degrees F. and no wind. After establishing contact the sampling crew preceded to the first location in a vacant lot on the northwest corner of 5900 South 900 East. This location is upgradient from 5600 South 900 East and was designated as sampling location GW11 (Figure 2A). START used the PowerProbe® to push four-foot-long 2.125-inch diameter drive rods equipped with a cutting shoe to collect continuous soil cores to 12 feet bgs. The soil cores were collected in clear acetate liners. Groundwater was encountered at 7 feet bgs. START cut open each liner to allow the soil core to be viewed and sampled. While Kim Viehweg from UDEQ collected a soil sample from the cores, START installed a temporary well in the borehole. START placed a capped five-foot -long section of slotted white plastic (poly vinyl chloride (PVC)) screen that had been threaded onto two five-foot sections of PVC riser into the center of the drive rod that had remained in the ground. START then pulled the drive rods out of the ground allowing the PVC screen and blank to remain in place. The soil was allowed to collapse back into the borehole against the slotted screen. START then placed an approximately 14-foot-long section of 0.25-inch diameter polyethylene tubing into the PVC well. An approximately two-foot-long section of flexible Tygon tubing was placed in position around the rotating head of a peristaltic sampling pump and the two open ends of the Tygon and polyethylene tubing were connected using a barbed 0.25-inch diameter fitting. The peristaltic pump was turned on and the groundwater was allowed to flow from the PVC well into a five-gallon plastic bucket. Approximately three gallons of groundwater

were purged before the groundwater had a significant reduction in the amount of sediment in it and was ready to be sampled for VOCs by Kim Viehweg. Once the groundwater sample was collected the borehole was abandoned by pulling the PVC well material from the ground and filling in the remaining opening with bentonite chips up to the ground surface. Dedicated PVC and tubing were used at each sampling location

The next sampling location (GW01) was adjacent to the upgradient municipal well designated as the New Howe well. The same procedures were initiated here as previously indicated. The soil core was collected from ground surface to 16 feet bgs and groundwater was indicated at approximately 10 feet bgs. The soil sample was collected and a temporary well was installed but it produced very little water. It was determined that the crew would abandon this temporary well and then try again. However, when the crew began to set up to install another well the hydraulic pump on the PowerProbe® failed. START would not be able to use the PowerProbe® until it was fixed and since the system is a custom configuration, it would take several days or weeks to get it working again.

Kim Viehweg wanted to get the project completed in 2008 and while the weather was still good. In order to meet these needs START made arrangements to obtain the Geoprobe®, its other direct push mobile equipment, that was temporarily stationed at another project site in Billings, Montana, and bring it to this site to complete the work. The two START members flew from Salt Lake City to Billings early in the morning on December 3, 2008, picked up the Geoprobe® and other equipment that might be needed to operate it, and drove it back to this site for operations to begin again on December 4, 2008.

On December 4, 2008, START returned to the GW01 sampling location at 0800 hours to collect the groundwater sample. The subsurface soil sample had been collected on December 1, 2008, before the PowerProbe® failed. In this instance START utilized a retractable stainless steel screen mounted inside a steel sheath equipped with an expendable tip to push to 20 feet bgs. Once there the drive rod string was pulled up 4 feet. This allowed the sheath to be retracted 4 feet and exposed the stainless steel screen to the groundwater formation. Once this was done the same groundwater sampling procedure using the polyethylene and Tygon tubing was used to collect the sample. Groundwater was still difficult to obtain at this location and a small check valve was installed on the down hole end of the poly tubing. The tubing was the quickly inserted and retracted inside of the drive rods to essentially hand pump the groundwater up the tubing. Once the groundwater was flowing out of the upper end of the tubing, it was attached to the Tygon tubing and the peristaltic pump to complete the purging of the temporary well and the

groundwater sample was collected. Approximately three gallons of water was purged from the well before sampling occurred at 0920 hours.

START then moved to sample location GW03 on the Jiffy Lube property. The sample location was moved from the proposed location in the grassy area on the north side of the property to the northeast corner of the rear parking lot because of the location of utilities and on-site parking for the business. This also put the location closer to any potential source of contamination from the new Red Hanger Cleaners location adjacent to this property on the east side. START pushed to 16 feet bgs at this location and water was indicated at 10 feet bgs. START used the previously described standard sampling methods to help UDEQ obtain the subsurface soil and groundwater samples. When this borehole was abandoned gravel was used to fill in the borehole to 6 feet bgs with the remaining portion filled with bentonite. The top 4 inches of the borehole was filled with asphalt patch and compacted to a smooth surface to match the parking lot.

Sample location GW02 was on the new Red Hanger Cleaners property. Kim Viehweg informed START that the consent agreement with the property owners only allowed sampling to go to 8 feet bgs. She then contacted the property owner and he consented to allow subsurface sampling to 10 feet bgs. START pushed to 10 feet bgs and groundwater was indicated at 9 feet bgs. The sampling location was on the west side of the grassy area in the front of the property. START installed the temporary groundwater sampling well using 3 feet of slotted screen and two sections of 5-foot-long PVC riser. Once the samples were collected the borehole was abandoned by filling in the hole with bentonite.

START then moved to the 7-Eleven convenience store and completed two sampling locations. Location GW05 was at the edge of the concrete pad for the dumpster on the southeast corner of the property. Sample location GW04 was at the southwest corner of the parking lot. At both locations the drive rod string was pushed to 16 feet bgs and water was indicated at 10 feet bgs.

The GW05 location was completed after two attempts. The first attempt went to 8 feet bgs. The acetate core liner had no soil recovery in the 4-feet to 8-feet bgs section due to a large rock plugging the cutting shoe. The entire drive string was withdrawn from this initial borehole and another borehole was created approximately three feet south of the initial one. There were no problems with this borehole and all samples were collected from this location. Both boreholes were filled with bentonite and the last 4 inches were filled in with asphalt patch and compacted to a smooth surface.

The soil core collected at GW04 from 6 to 10 feet bgs depth was black and had a petroleum odor. This sample location may have been at the former underground storage tanks location or was immediately downgradient from it. UDEQ collected the soil sample from this interval. After activities were complete at this location START decontaminated all of the rods that had been used for sampling. This completed operations for the day.

START returned to the site on December 5, 2008, to complete the remaining sampling. START began the day at location GW08 at the Chase Bank property. A new hire with the Utah Department of Health was on site to observe the Geoprobe® operations and learn about site investigations. He was given an orientation to Geoprobe® operations as well as a site safety briefing before START began work for the day. The drive rod string was pushed to 14 feet bgs with water indicated at 8 feet bgs. Once sampling was completed the borehole was filled with bentonite and the top 4 inches was filled in with asphalt patch and compacted to a smooth surface to blend in with the other asphalt.

START then moved to the 7-Eleven property to complete the remaining two locations. GW06 was located on the north edge of the parking lot and GW07 was in the grassy area north of the main store building. At both locations the drive rod string was pushed to 14 feet bgs with water indicated at 8 feet bgs. After sampling the borehole at GW06 was filled in with bentonite with the last 4 inches filled with asphalt patch that was compacted. The borehole at GW07 was filled in completely with bentonite.

START moved to sample location GW09 adjacent to the municipal drinking water well location designated as the Highland Dairy well. This was located at the top of a hill overlooking the drainage for Cottonwood Creek to the west. START began its initial borehole location at the top of the hill on the north side of the water storage tank. START got to 19 feet bgs and the got refusal without any indication of groundwater. START then moved downhill to the area next to the sidewalk and the driveway into the property. This time the drive rod string was pushed to 24 feet bgs to improve the likelihood of obtaining sufficient water to sample. Groundwater was indicated at 12 feet bgs. The well was constructed using 10 feet of slotted screen with PVC riser for the remaining portion. START had no problem obtaining enough groundwater to collect the sample and a blind duplicate sample from this location. Once sampling was completed both boreholes were filled with bentonite to the ground surface.

START then moved to the last sampling location, GW10 was located adjacent to another municipal well designated as the 5th East Well #3. This site was located next to Cottonwood Creek. At this location START pushed the drive rod string to just 12 feet bgs with groundwater indicated at 6 feet bgs. The

borehole was located just off of the sidewalk and the driveway to the well house on the southeast corner of the property. Once the samples were collected the borehole was filled in with bentonite to the ground surface. START then decontaminated all of the equipment that had been used to collect the samples and prepared to return the Geoprobe® to Billings, Montana, and drop off the PowerProbe® for repair at the manufacturer's facility in American Falls, Idaho, the following day.

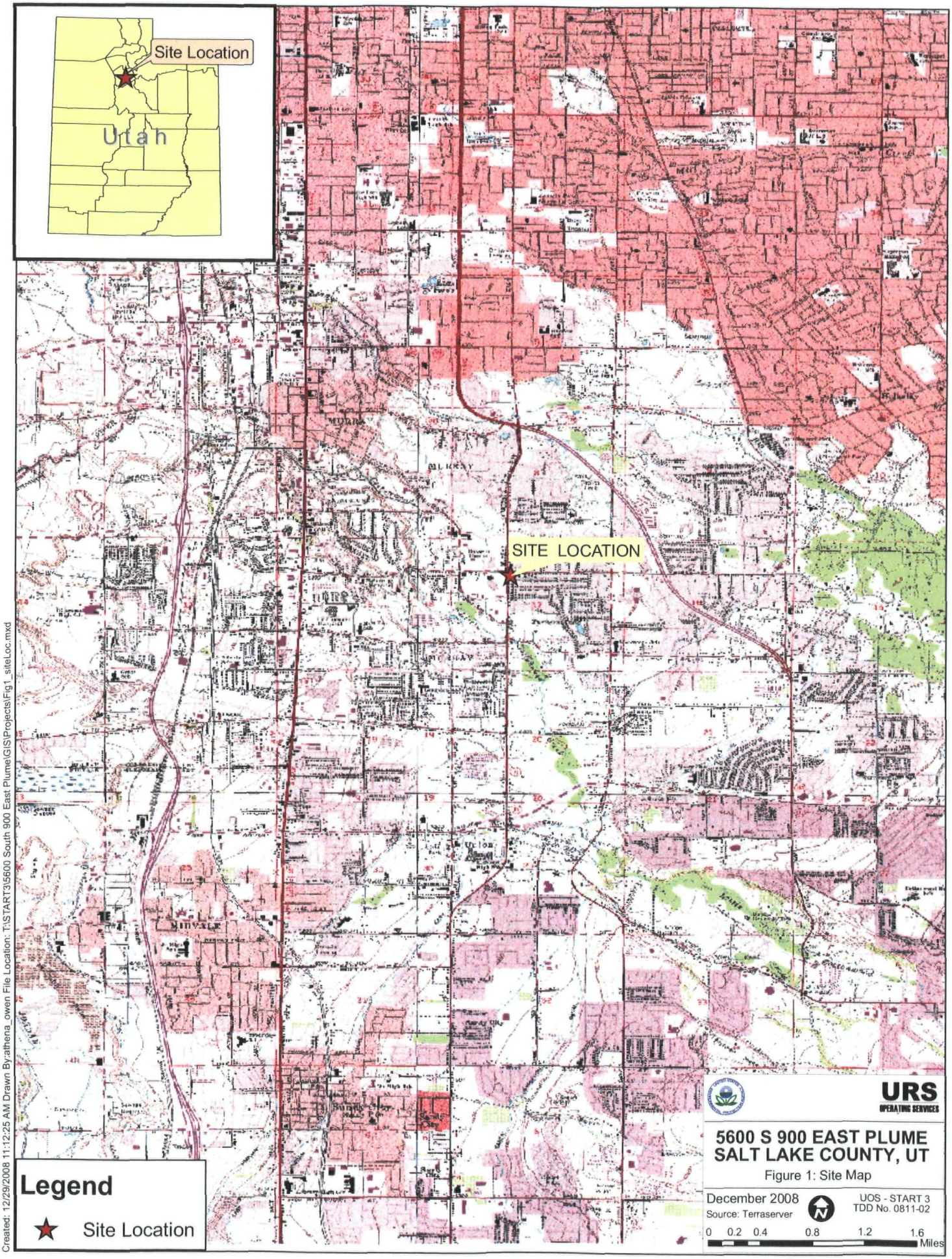
On December 6, 2008, START demobilized from the site by driving the PowerProbe® to the manufacturer's facility near Pocatello, Idaho, and then continued on to return the Geoprobe® to its next scheduled site in Billings, Montana.

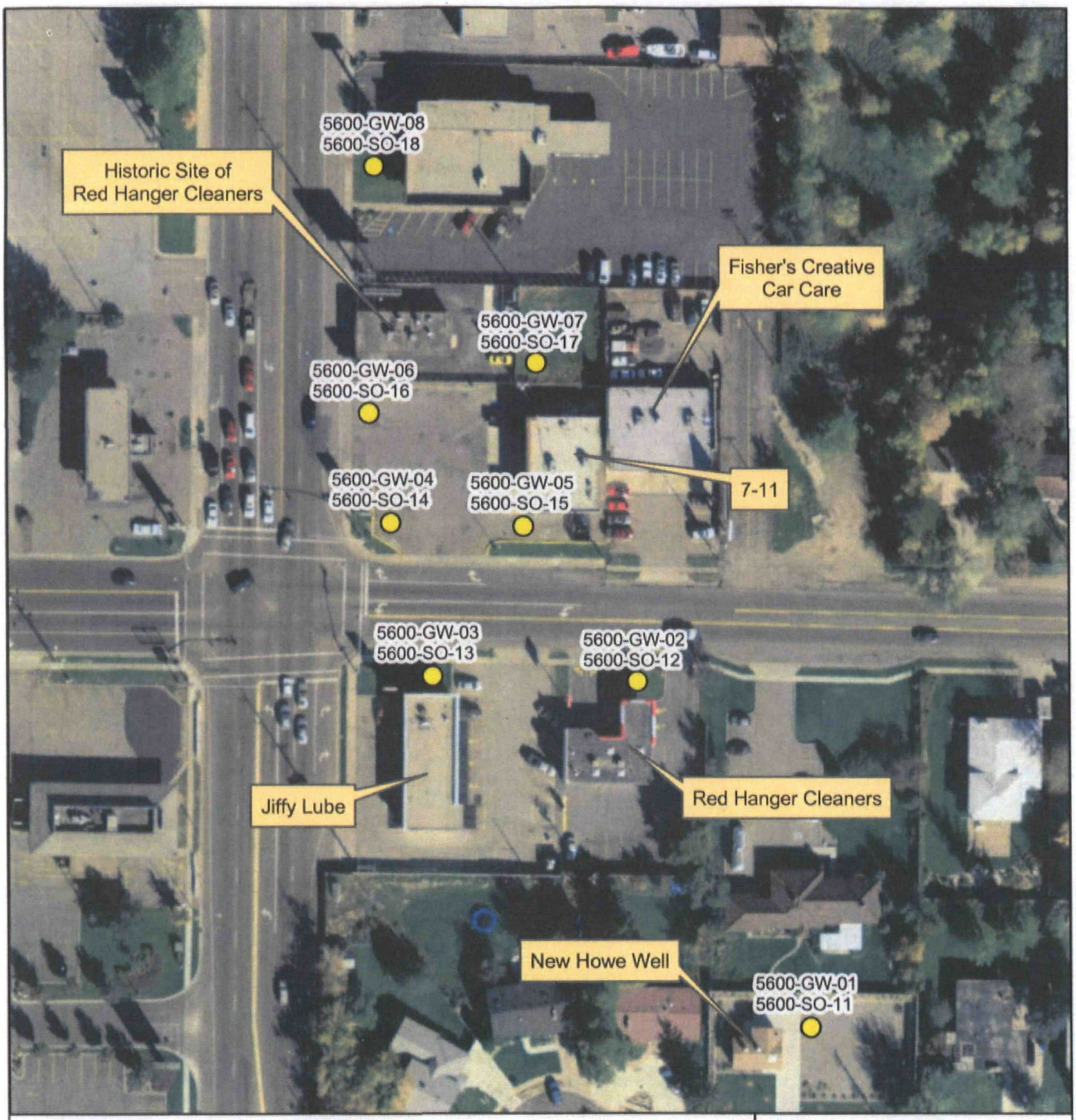
Site photos are provided in Appendix A.

4.0 SAMPLING AND ANALYSIS

START was tasked to provide geotechnical assistance to the UDEQ in association with this site investigation. START provided this service with UDEQ collecting the samples and submitting them to an EPA contract laboratory for analysis. START collected no samples for this project.

However, the laboratories used under the EPA contract program do not perform analyses on oily samples such as the ones that were collected at GW04. START was contacted by the EPA task monitor to arrange for the analysis of one groundwater sample for total petroleum hydrocarbons under this TDD. One 40 milliliter glass container preserved with hydrochloric acid was submitted to the Test America Laboratory in Arvada, Colorado. Due to the limited quantity submitted and the preservation with the acid, the only actual analysis that could be performed on the sample was for gasoline range organics (GRO). The sample result was submitted to the EPA task monitor under a separate cover to be forwarded on to the UDEQ representative.


Site Location
Utah
SITE LOCATION
Legend
Site Location
URS
OPERATING SERVICES
5600 S 900 EAST PLUME
SALT LAKE COUNTY, UT
Figure 1: Site Map
December 2008
Source: Terraserver
UOS - START 3
TDD No. 0811-02
0 0.2 0.4 0.8 1.2 1.6
Miles
Created: 12/29/2008 11:12:25 AM Drawn By:athena_owen File Location: T:\START3\5600 South 900 East Plume\GIS\Projects\Fig1_siteLoc.mxd



0 45 90 180 270 360 Feet

Utah Department of Environmental Quality
Division of Environmental Response and Remediation

Legend

Proposed Sample Locations

5600-GW-01
5600-SO-11
Ground water and soil boring locations

N
W E
S

Aerial photograph obtained from the State of Utah GIS database, 2006

Figure 2
Site Map

5600 South 900 East Plume
Salt Lake County, Utah

by: Kim Viehweg date: 4/11/08

0 0.1 0.2 0.4 0.6 Miles

Legend

Proposed Sample Locations

5600-GW-11
5600-SO-21
Ground water and soil boring locations

N
W E
S

Aerial photograph obtained from the State of Utah GIS database, 2006

Utah Department of Environmental Quality
Division of Environmental Response and Remediation

Figure 2-A
Site Map

5600 South 900 East Plume
Salt Lake County, Utah

by: Kim Viehweg date: 4/11/08

PHOTO 1
START using the PowerProbe® to collect soil and groundwater samples at the New Home municipal well location (GW01) at 942 East 5650 South in Murray, Utah.

PHOTO 2
START using the Geoprobe® to collect soil and groundwater samples at the GW03 location in the northeast corner of the Jiffy Lube property at 5601 South 900 East in Murray, Utah.

PHOTO 3
START purging the temporary groundwater monitoring well (GW02) at the new Red Hanger Cleaners location at 926 East 5600 South in Murray, Utah.

PHOTO 4
Sample location for GW05 in the southeast corner of the 7-Eleven property at 5585 South 900 East in Murray, Utah. Pizza Hut in the background is the former location of the Red Hanger Cleaners.

PHOTO 5
Potentially petroleum-contaminated soil from a core collected from approximately 6 to 10 feet below Ground surface at the GW04 location in the southwest corner of the parking lot at 7-Eleven. 7-Eleven has had USTs removed. Groundwater sampled at part of that removal had dry cleaning solvent in it.

PHOTO 6
START member using the Geoprobe® to collect soil and groundwater samples at location GW10 at the municipal well #3 at 5th East in Murray, Utah.

Appendix D

Sample Shipping Information and Laboratory Chain of Custody Records

FedEx Express USA Airbill

FedEx Tracking Number 8291 6197 3120

Form I.D. No. 0215 — Sender's Copy

1 From *Please print and press hard.*

Date 12/8/08 Sender's FedEx Account Number 1828-8775-7

Sender's Name Kim Viehweg Phone (801) 536-4100

Company DEPT OF ENVIRONMENTAL QUALITY

Address 168 N 1950 W Dept./Floor/Suite/Room

City SALT LAKE CITY State UT ZIP 84116

2 Your Internal Billing Reference 1000,4691,NAC,KAI08,M201PSIM
First 24 characters will appear on invoice.

3 To

Recipient's Name Jessica Schulze Phone (281) 292-5277

Company A4 Scientific

Address 1544 Sawdust Rd., Suite 505
To "HOLD" at FedEx location, print FedEx address. We cannot deliver to P.O. boxes or P.O. ZIP codes

Dept./Floor/Suite/Room

City The Woodlands State TX ZIP 77380

Peel and Stick FedEx USA Airbill

See back for application instructions.

Questions? Visit our Web site at fedex.com

or call 1-800-Go-FedEx® (800)463-3339.

By using this Airbill you agree to the service conditions on the back of this Airbill and in our current Service Guide, including terms that limit our liability.

0183648659

4a Express Package Service — *Packages up to 150 lbs.* Delivery commitment may be later in some areas.

- ☐ FedEx Priority Overnight — Next business morning
- ☑ FedEx Standard Overnight — Next business afternoon
- ☐ FedEx First Overnight — Earliest next business morning delivery to select locations
- ☐ FedEx 2Day — Second business day
- ☐ FedEx Express Saver — Third business day
- ☐ NEW FedEx Extra Hours — Later drop-off with next business afternoon delivery for select locations

FedEx Envelope rate not available. Minimum charge: One-pound rate

4b Express Freight Service — *Packages over 150 lbs.* Delivery commitment may be later in some areas.

- ☐ FedEx 1Day Freight* — Next business day
- ☐ FedEx 2Day Freight — Second business day
- ☐ FedEx 3Day Freight — Third business day

* Call for Confirmation: _____

5 Packaging * Declared value limit $500

- ☐ FedEx Envelope*
- ☐ FedEx Pak* — Includes FedEx Small Pak, FedEx Large Pak, and FedEx Sturdy Pak
- ☒ Other Pkg. — Includes FedEx Box, FedEx Tube, and customer pkg.

6 Special Handling — Include FedEx address in Section 3.

- ☐ SATURDAY Delivery — RESTRICTIONS: Available only for FedEx Priority Overnight and FedEx 2Day to select ZIP codes
- ☐ SUNDAY Delivery — RESTRICTIONS: Available only for FedEx Priority Overnight to select ZIP codes
- ☐ HOLD Weekday at FedEx Location — RESTRICTIONS: Not available with FedEx First Overnight
- ☐ HOLD Saturday at FedEx Location — RESTRICTIONS: Available only for FedEx Priority Overnight and FedEx 2Day to select locations

Does this shipment contain dangerous goods? One box must be checked.

- ☐ No
- ☐ Yes — As per attached Shipper's Declaration
- ☐ Dry Ice — Dry Ice, 9, UN 1845 _____ x _____ kg
- ☐ Cargo Aircraft Only

Dangerous Goods (incl. Dry Ice) cannot be shipped in FedEx packaging or with FedEx Extra Hours service

7 Payment *Bill to:* — Enter FedEx Acct. No. or Credit Card No. below.

- ☑ Sender — Acct. No. in Section 1 will be billed.
- ☐ Recipient
- ☐ Third Party
- ☐ Credit Card
- ☐ Cash/Check

FedEx Acct. No. / Credit Card No. _____ Exp. Date _____

Total Packages	Total Weight	Total Declared Value†
1	4.5	$ .00

†Our liability is limited to $100 unless you declare a higher value. See back for details.

FedEx Use Only

8 Release Signature *Sign to authorize delivery without obtaining signature.*

Kim Viehweg

By signing you authorize us to deliver this shipment without obtaining a signature and agree to indemnify and hold us harmless from any resulting claims.

406

SRP • Rev. Date 12/00 • Part #155818S • ©1994–2000 FedEx • PRINTED IN U.S.A.

SAC IT

FedEx Express USA Airbill

FedEx Tracking Number 8291 6197 3110

Form I.D. No. 0215 — Sender's Copy

1 From *Please print and press hard.*

Date 12/3/08 Sender's FedEx Account Number 1828-8775-7

Sender's Name Kim Viehweg Phone (801) 536-4100

Company DEPT OF ENVIRONMENTAL QUALITY

Address 168 N 1950 W Dept./Floor/Suite/Room

City SALT LAKE CITY State UT ZIP 84116

2 Your Internal Billing Reference 1000,4691,NAC,KAI08,M201PSIM
First 24 characters will appear on invoice.

3 To

Recipient's Name Jessica Schulze Phone (281) 292-5277

Company A4 Scientific

Address 1544 Sawdust Rd., Suite 505
To "HOLD" at FedEx location, print FedEx address. We cannot deliver to P.O. boxes or P.O. ZIP codes.

Dept./Floor/Suite/Room

City The Woodlands State TX ZIP 77380

Peel and Stick FedEx USA Airbill

See back for application instructions.

Questions? Visit our Web site at fedex.com

or call 1-800-Go-FedEx® (800)463-3339.

By using this Airbill you agree to the service conditions on the back of this Airbill and in our current Service Guide, including terms that limit our liability.

0183648659

4a Express Package Service — *Packages up to 150 lbs.* Delivery commitment may be later in some areas.

- ☐ FedEx Priority Overnight — Next business morning
- ☑ FedEx Standard Overnight — Next business afternoon
- ☐ FedEx First Overnight — Earliest next business morning delivery to select locations
- ☐ FedEx 2Day — Second business day
- ☐ FedEx Express Saver — Third business day
- ☐ NEW FedEx Extra Hours — Later drop-off with next business afternoon delivery for select locations

FedEx Envelope rate not available. Minimum charge: One-pound rate

4b Express Freight Service — *Packages over 150 lbs.* Delivery commitment may be later in some areas.

- ☐ FedEx 1Day Freight* — Next business day
- ☐ FedEx 2Day Freight — Second business day
- ☐ FedEx 3Day Freight — Third business day

* Call for Confirmation: _____

5 Packaging * Declared value limit $500

- ☐ FedEx Envelope*
- ☐ FedEx Pak* — Includes FedEx Small Pak, FedEx Large Pak, and FedEx Sturdy Pak
- ☐ Other Pkg. — Includes FedEx Box, FedEx Tube, and customer pkg.

6 Special Handling — Include FedEx address in Section 3.

- ☐ SATURDAY Delivery — RESTRICTIONS: Available only for FedEx Priority Overnight and FedEx 2Day to select ZIP codes
- ☐ SUNDAY Delivery — RESTRICTIONS: Available only for FedEx Priority Overnight to select ZIP codes
- ☐ HOLD Weekday at FedEx Location — RESTRICTIONS: Not available with FedEx First Overnight
- ☐ HOLD Saturday at FedEx Location — RESTRICTIONS: Available only for FedEx Priority Overnight and FedEx 2Day to select locations

Does this shipment contain dangerous goods? One box must be checked.

- ☐ No
- ☐ Yes — As per attached Shipper's Declaration
- ☐ Dry Ice — Dry Ice, 9, UN 1845 _____ x _____ kg
- ☐ Cargo Aircraft Only

Dangerous Goods (incl. Dry Ice) cannot be shipped in FedEx packaging or with FedEx Extra Hours service.

7 Payment *Bill to:* — Enter FedEx Acct. No. or Credit Card No. below.

- ☑ Sender — Acct. No. in Section 1 will be billed.
- ☐ Recipient
- ☐ Third Party
- ☐ Credit Card
- ☐ Cash/Check

FedEx Acct. No. / Credit Card No. _____ Exp. Date _____

Total Packages	Total Weight	Total Declared Value†
1		$ .00

†Our liability is limited to $100 unless you declare a higher value. See back for details.

FedEx Use Only

8 Release Signature *Sign to authorize delivery without obtaining signature.*

Kim Viehweg

By signing you authorize us to deliver this shipment without obtaining a signature and agree to indemnify and hold us harmless from any resulting claims.

406

From: "Kramer, Caroline" <ckramer5@fedcsc.com>
To: <kviehweg@utah.gov>
Date: 12/11/2008 10:11 AM
Subject: FW: Region 08 | Case 38043 | Lab A4 | Issue Discrepancies with tags, jars, and/or TR/COC | FINAL

Kim,
Please see the email below from A4. They will be sending the sample out today under Airbill#860661465200. Will this email be sufficient to submit to the accounting department, or do you need an actual copy of the airbill? If so I can request a copy from the lab.
Thanks,

Caroline L. Kramer
Environmental Coordinator - Regions 8 and 9
CSC

15000 Conference Center Drive, Chantilly VA 20151
Civil Division | (p) 703-818-4248 | (f) 703-818-4602 |
ckramer5@fedcsc.com | www.csc.com

-----Original Message-----
From: jschulze@a4scientific.com [mailto:jschulze@a4scientific.com]
Sent: Thursday, December 11, 2008 12:04 PM
To: Kramer, Caroline
Cc: sri; pakanati
Subject: Re: Region 08 | Case 38043 | Lab A4 | Issue Discrepancies with tags, jars, and/or TR/COC | FINAL

Lab will send sample out today to the listed below address. Please note airbill # is 860661465200.

----- Original Message -----
From: "Kramer, Caroline" <ckramer5@fedcsc.com>
To: "Jessica Schulze" <jschulze@a4scientific.com>; "Laxmi" <laxmi@a4scientific.com>; "Reddy Pakanati" <Pakanati@a4scientific.com>
Cc: <Goodrich.Donald@epamail.epa.gov>
Sent: Thursday, December 11, 2008 10:38 AM
Subject: Region 08 | Case 38043 | Lab A4 | Issue Discrepancies with tags,
jars, and/or TR/COC | FINAL

Jessica,
Summary Start
Issue: Sample H2562 (page 4 of attached TR/COC) has "TPH" listed in for the analysis. All other samples have VOA listed for the analysis which is the only analysis the Case is scheduled for. Does sample H2562 require a different analysis or should the analysis be VOA?
Resolution: Per Region 8, the laboratory shall cancel sample H2562 as part of Case 38043 and transship sample H2562 to a non-CLP laboratory today for analysis, 12/11/08, at the following address:

Test America
4955 Yarrow Street
Arvada, CO 80002
Attn: Sample Custodian
303-736-0100

Airbill account number: 1828-8775-7

Please refer to project as "36548685"
Summary End

Please let me know if you have any questions or problems.
Thank you,

Caroline L. Kramer
Environmental Coordinator - Regions 8 and 9
CSC

15000 Conference Center Drive, Chantilly VA 20151
Civil Division | (p) 703-818-4248 | (f) 703-818-4602 |
ckramer5@fedcsc.com | www.csc.com

--> 12/11/2008 Phone conversation between Caroline Kramer, SOM, nad Kim Viehweg, UT DEQ. Kim provided SMO with the Airbill that should be used for the transhipment is from A4: 1828-8775-7

-----Original Message-----
From: Christiansen.Gwen@epamail.epa.gov
[mailto:Christiansen.Gwen@epamail.epa.gov]
Sent: Thursday, December 11, 2008 10:52 AM
To: Goodrich.Donald@epamail.epa.gov; jkatz@utah.gov; kviehweg@utah.gov
Cc: Kramer, Caroline
Subject: Fw: Laboratory for Oily Sample

Hi Don,
Here's the lab info for the rouge sample. Please let me know if you need me to do anything else.
Thanks!
Gwen
----- Forwarded by Gwen Christiansen/R8/USEPA/US on 12/11/2008 08:50 AM -----

Kent_Alexander@URSCorp.com	To	
12/10/2008 04:29 PM	Gwen Christiansen/R8/USEPA/US@EPA	
	cc	
	Subject	
	Laboratory for Oily Sample	

Gwen, I have set up a lab to analyze the oily sample we discussed earlier today for the 5600 South 900 East Plume project. Go ahead and have the CLP lab send the sample to:

Test America
4955 Yarrow Street
Arvada, CO 80002
Attn: Sample Custodian
303-736-0100

Please have them refer to the project as "36548685". That is the reference number set up with Test America. I have it set up right now as a normal turnaround (10 business days) with a full validatable package.

If there is anything else that I can do, just let me know.

Kenton J. Alexander
Subcontracts Manager
Office Phone: 303-291-8209
Cell Phone: 720-810-0751
Fax: 303-291-8296
-----Original Message-----
From: Christiansen.Gwen@epamail.epa.gov
[mailto:Christiansen.Gwen@epamail.epa.gov]
Sent: Wednesday, December 10, 2008 2:06 PM
To: Goodrich.Donald@epamail.epa.gov
Cc: Kramer, Caroline; jkatz@utah.gov; kviehweg@utah.gov
Subject: RE: Case 38043 workplan

Hi Donald,
This was a last minute seepage sample. I will contact URS and ask them to arrange for analysis, and let you know where it needs to be sent.
Thank you
Gwen

Gwenette R. Christiansen, NPL Coordinator
Environmental Scientist & Engineer
Site Assessment and Brownfields Program
Office of Environmental Protection & Remediation
USEPA Region 8, Denver, CO
1595 Wynkoop St 8EPR-B
Denver, CO 80202-1129

(303) 312-6463

Donald Goodrich/R8/USEPA/US
12/10/2008 11:53 AM

To: Gwen Christiansen/R8/USEPA/US@EPA, jkatz@utah.gov, kviehweg@utah.gov
cc: ckramer5@fedcsc.com
Subject: RE: caSE 38043 workplan (Document link: Gwen Christiansen)

Gwen, Joe and Kim,

We have an issue with the last sample (H2562) request for TPH. The CLP program does not have a TPH method nor can we go the Modified Analysis route. If you still want this sample analyzed for TPH, we will need to find a different contract vehicle. We can have the CLP laboratory ship sample H2562 once a laboratory is found who can analyze for TPH. Let me know what you want to do with the sample. I'm not sure what the HT is for TPH but this may also be an issue.

Thanks,
Don

Don Goodrich
EPA Region 8 Environmental Scientist, CLP Project Officer
Ecosystem Protection and Remediation, Program Support
office: 303-312-6687
cell: 303-905-4024

-----Original Message-----
From: Goodrich.Donald@epamail.epa.gov
[mailto:Goodrich.Donald@epamail.epa.gov]
Sent: Tuesday, December 09, 2008 5:00 PM
To: jkatz@utah.gov

Cc: Kramer, Caroline
Subject: Fw: Region 08 | Case 38043 | Lab A4 | Issue Discrepancies with tags, jars, and/or TR/COC

Joe,
Will you confirm required analysis for sample H2562 as described below.

Thanks,
Don

Don Goodrich
EPA Region 8 Environmental Scientist, CLP Project Officer Ecosystem Protection and Remediation, Program Support
office: 303-312-6687
cell: 303-905-4024
----- Forwarded by Donald Goodrich/R8/USEPA/US on 12/09/2008 02:57 PM -----

"Kramer, Caroline" <ckramer5@fedcsc.com> 12/09/2008 01:07 PM

To: Donald Goodrich/R8/USEPA/US@EPA
cc: <jkatz@utah.gov>
Subject: Region 08 | Case 38043 | Lab A4 | Issue Discrepancies with tags, jars, and/or TR/COC

Don,
A4 is reporting an additional issue regarding Case 38043. Please advise on how the Region wishes the laboratory to proceed.

Issue: Sample H2562 (page 4 of attached TR/COC) has "TPH" listed in for the analysis. All other samples have VOA listed for the analysis which is the only analysis the Case is scheduled for. Does sample H2562 require a different analysis or should the analysis be VOA?

Please let me know if you have any questions or problems.
Thank you,

Caroline L. Kramer
Environmental Coordinator - Regions 8 and 9 CSC

15000 Conference Center Drive, Chantilly VA 20151 Civil Division | (p) 703-818-4248 | (f) 703-818-4602 | ckramer5@fedcsc.com | www.csc.com
---

-----Original Message-----
From: jschulze@a4scientific.com [mailto:jschulze@a4scientific.com]
Sent: Tuesday, December 09, 2008 2:54 PM
To: Kramer, Caroline
Subject: Re: Region 08 | Case 38043 | Lab A4 | Issue Discrepancies with tags, jars, and/or TR/COC | FINAL

Caroline,

Issue 2: Per TR/COC sample H2562 requires TPH analysis?

USEPA Contract Laboratory Program
Organic Traffic Report & Chain of Custody Record

Case No: L
DAS No:
SDG No:

Date Shipped:	12/3/2008
Carrier Name:	FedEx
Airbill:	8291 6197 3110
Shipped to:	A4 Scientific 1544 Sawdust Road Suite 505 The Woodlands TX 77380 (281) 292-5277

Chain of Custody Record

Relinquished By	(Date / Time)	Received By	(Date / Time)
1			
2			
3			
4			

Sampler Signature:

For Lab Use Only

Lab Contract No:
Unit Price:
Transfer To:
Lab Contract No:
Unit Price:

ORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/ Bottles	STATION LOCATION	SAMPLE COLLECT DATE/TIME		INORGANIC SAMPLE No.	FOR LAB USE ONLY Sample Condition On Receipt
H1YP6	Ground Water/ Kim Viehweg	/G	VOA (21)	8-338251 (HCL), 8-338251a (HCL) (2)	Background	S: 12/2/2008	9:35		
H1YP7	Subsurface Soil (>12")/ Kim Viehweg	/G	VOA (21)	8-338252 (Ice Only) (1)	Background	S: 12/2/2008	9:40		
H1YP8	Subsurface Soil (>12")/ Kim Viehweg	/G	VOA (21)	8-338253 (Ice Only), 8-338254 (Ice Only) (2)	New Howe Well	S: 12/2/2008	11:05		
H1YP9	Field QC/ Kim Viehweg	/G	VOA (21)	8-338255 (HCL), 8-338255a (HCL) (2)	DERR	S: 12/2/2008	7:30		

Shipment for Case Complete?	Sample(s) to be used for laboratory QC:	Additional Sampler Signature(s):	Cooler Temperature Upon Receipt:	Chain of Custody Seal Number:	
N	H1YP8				

Analysis Key: **Concentration:** L = Low, M = Low/Medium, H = High **Type/Designate:** Composite = C, Grab = G

Custody Seal Intact? ___ Shipment Iced? ___

VOA = CLP TCL Volatiles

TR Number: 8-043013577-120308-0001

LABORATORY COPY

PR provides preliminary results. Requests for preliminary results will increase analytical costs.

Send Copy to: Sample Management Office, Attn: Heather Bauer, CSC, 15000 Conference Center Dr., Chantilly, VA 20151-3819; Phone 703/818-4200; Fax 703/818-4602

USEPA Contract Laboratory Program
Generic Chain of Custody

Reference Case
Client No:
SDG No: L

Date Shipped:	**Chain of Custody Record**	Sampler Signature:	**For Lab Use Only**
Carrier Name: FedEx	Relinquished By (Date / Time)	Received By (Date / Time)	Lab Contract No:
Airbill:	1		Unit Price:
Shipped to: A4 Scientific 1544 Sawdust Road Suite 505 The Woodlands TX 77380 (281) 292-5277	2		Transfer To:
	3		Lab Contract No:
	4		Unit Price:

SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/ Bottles	STATION LOCATION	SAMPLE COLLECT DATE/TIME		FOR LAB USE ONLY Sample Condition On Receipt
H2562	Ground Water/ Kim Viehweg	/G	TPH (21)	8-338269 (HCL) (1)	7-11-extra	S: 12/4/2008	16:30	

Shipment for Case Complete? Y	Sample(s) to be used for laboratory QC:	Additional Sampler Signature(s):	Cooler Temperature Upon Receipt:	Chain of Custody Seal Number:
Analysis Key:	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G	Custody Seal Intact? ___	Shipment Iced? ___

TPH = Total Petroleum Hydrocarbons

TR Number: 8-043013577-120808-0001

LABORATORY COPY

PR provides preliminary results. Requests for preliminary results will increase analytical costs.
Send Copy to: Sample Management Office, Attn: Heather Bauer, CSC, 15000 Conference Center Dr., Chantilly, VA 20151-3819; Phone 703/818-4200; Fax 703/818-4602

USEPA Contract Laboratory Program
Organic Traffic Report & Chain of Custody Record

Case No: L
DAS No:
SDG No:

Date Shipped:
Carrier Name: FedEx
Airbill:
Shipped to: A4 Scientific
1544 Sawdust Road
Suite 505
The Woodlands TX 77380
(281) 292-5277

Chain of Custody Record

Relinquished By	(Date / Time)	Received By	(Date / Time)
1			
2			
3			
4			

Sampler Signature:

For Lab Use Only
Lab Contract No:
Unit Price:
Transfer To:
Lab Contract No:
Unit Price:

ORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/ Bottles	STATION LOCATION	SAMPLE COLLECT DATE/TIME		INORGANIC SAMPLE No.	FOR LAB USE ONLY Sample Condition On Receipt
H1YQ0	Ground Water/ Kim Viehweg	/G	VOA (21)	8-338256 (HCL), 8-338256a (HCL), 8-338257 (HCL), 8-338257a (HCL), 8-338258 (HCL), 8-338258a (HCL) (6)	New Howe Well	S: 12/4/2008	9:05		
H1YQ1	Ground Water/ Kim Viehweg	/G	VOA (21)	8-338259 (HCL), 8-338259a (HCL) (2)	Red Hanger Cleaners	S: 12/4/2008	13:10		
H1YQ2	Ground Water/ Kim Viehweg	/G	VOA (21)	8-338260 (HCL), 8-338260a (HCL) (2)	Jiffy Lube	S: 12/4/2008	10:45		
H1YQ3	Ground Water/ Hans Millican	/G	VOA (21)	8-338261 (HCL), 8-338261a (HCL) (2)	7-11	S: 12/4/2008	16:46		
H1YQ4	Ground Water/ Kim Viehweg	/G	VOA (21)	8-338262 (HCL), 8-338262a (HCL) (2)	7-11	S: 12/4/2008	15:20		
H1YQ5	Ground Water/ Kim Viehweg	/G	VOA (21)	8-338263 (HCL), 8-338263a (HCL) (2)	7-11	S: 12/5/2008	10:40		
H1YQ6	Ground Water/ Kim Viehweg	/G	VOA (21)	8-338264 (HCL), 9-338264a (HCL) (2)	7-11	S: 12/5/2008	11:59		
H1YQ7	Ground Water/ Kim Viehweg	/G	VOA (21)	8-338265 (HCL), 8-338265a (HCL) (2)	Chase Bank	S: 12/5/2008	9:40		
H1YQ8	Ground Water/ Kim Viehweg	/G	VOA (21)	8-338266 (HCL), 8-338266a (HCL) (2)	Highland Dairy Well	S: 12/5/2008	14:45		
H2560	Ground Water/ Kim Viehweg	/G	VOA (21)	8-338267 (HCL), 8-338267a (HCL) (2)	5th E Well #3	S: 12/5/2008	16:05		

Shipment for Case Complete? Y	Sample(s) to be used for laboratory QC: H1YQ0	Additional Sampler Signature(s):	Cooler Temperature Upon Receipt:	Chain of Custody Seal Number:
Analysis Key:	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G		Custody Seal Intact? ___ Shipment Iced? ___

VOA = CLP TCL Volatiles

TR Number: 8-043013577-120808-0002

LABORATORY COPY

PR provides preliminary results. Requests for preliminary results will increase analytical costs.
Send Copy to: Sample Management Office, Attn: Heather Bauer, CSC, 15000 Conference Center Dr., Chantilly, VA 20151-3819; Phone 703/818-4200; Fax 703/818-4602

USEPA Contract Laboratory Program
Organic Traffic Report & Chain of Custody Record

Case No: L
DAS No:
SDG No:

Date Shipped:
Carrier Name: FedEx
Airbill:
Shipped to: A4 Scientific
1544 Sawdust Road
Suite 505
The Woodlands TX 77380
(281) 292-5277

Chain of Custody Record

Relinquished By	(Date / Time)	Received By	(Date / Time)
1			
2			
3			
4			

Sampler Signature:

For Lab Use Only
Lab Contract No:
Unit Price:
Transfer To:
Lab Contract No:
Unit Price:

ORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/ Bottles	STATION LOCATION	SAMPLE COLLECT DATE/TIME		INORGANIC SAMPLE No.	FOR LAB USE ONLY Sample Condition On Receipt
H2561	Ground Water/ Kim Viehweg	/G	VOA (21)	8-338268 (HCL), 8-338268a (HCL) (2)	Chase Bank	S: 12/5/2008	16:55		
H2563	Subsurface Soil (>12")/ Kim Viehweg	/G	VOA (21)	8-338270 (Ice Only) (1)	Red Hanger Cleaners	S: 12/4/2008	12:45		
H2564	Subsurface Soil (>12")/ Kim Viehweg	/G	VOA (21)	8-338271 (Ice Only) (1)	Jiffy Lube	S: 12/4/2008	10:35		
H2565	Subsurface Soil (>12")/ Kim Viehweg	/G	VOA (21)	8-338272 (Ice Only) (1)	7-11	S: 12/4/2008	16:40		
H2566	Subsurface Soil (>12")/ Kim Viehweg	/G	VOA (21)	8-338273 (Ice Only) (1)	7-11	S: 12/4/2008	14:10		
H2567	Subsurface Soil (>12")/ Kim Viehweg	/G	VOA (21)	8-338274 (Ice Only) (1)	7-11	S: 12/5/2008	10:25		
H2568	Subsurface Soil (>12")/ Kim Viehweg	/G	VOA (21)	8-338275 (Ice Only) (1)	7-11	S: 12/5/2008	11:50		
H2569	Subsurface Soil (>12")/ Kim Viehweg	/G	VOA (21)	8-338276 (Ice Only) (1)	Chase Bank	S: 12/5/2008	9:25		
H29Q5	Subsurface Soil (>12")/ Kim Viehweg	/G	VOA (21)	8-338277 (Ice Only) (1)	Highland Dairy Well	S: 12/5/2008	14:35		
H29Q6	Subsurface Soil (>12")/ Kim Viehweg	/G	VOA (21)	8-338278 (Ice Only) (1)	5th E WEll #3	S: 12/5/2008	16:10		

Shipment for Case Complete? Y	Sample(s) to be used for laboratory QC:	Additional Sampler Signature(s):	Cooler Temperature Upon Receipt:	Chain of Custody Seal Number:	
	H1YQ0				
Analysis Key:	**Concentration:** L = Low, M = Low/Medium, H = High	**Type/Designate:** Composite = C, Grab = G		**Custody Seal Intact?** ___	**Shipment Iced?** ___
VOA = CLP TCL Volatiles					

TR Number: 8-043013577-120808-0002

LABORATORY COPY

PR provides preliminary results. Requests for preliminary results will increase analytical costs.
Send Copy to: Sample Management Office, Attn: Heather Bauer, CSC, 15000 Conference Center Dr., Chantilly, VA 20151-3819; Phone 703/818-4200; Fax 703/818-4602

USEPA Contract Laboratory Program
Organic Traffic Report & Chain of Custody Record

Case No:
DAS No:
SDG No:

L

Date Shipped:
Carrier Name: FedEx
Airbill:
Shipped to: A4 Scientific
1544 Sawdust Road
Suite 505
The Woodlands TX 77380
(281) 292-5277

Chain of Custody Record

Relinquished By	(Date / Time)	Received By	(Date / Time)
1			
2			
3			
4			

Sampler Signature:

For Lab Use Only

Lab Contract No:
Unit Price:
Transfer To:
Lab Contract No:
Unit Price:

ORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/ Bottles	STATION LOCATION	SAMPLE COLLECT DATE/TIME	INORGANIC SAMPLE No.	FOR LAB USE ONLY Sample Condition On Receipt
H29Q7	Subsurface Soil (>12")/ Kim Viehweg	/G	VOA (21)	8-338279 (Ice Only) (1)	Chase Bank	S: 12/5/2008 16:45		
H29Q8	Field QC/ Kim Viehweg	/G	VOA (21)	8-338280 (HCL), 8-338280a (HCL) (2)	DERR	S: 12/4/2008 7:30		

Shipment for Case Complete? Y	Sample(s) to be used for laboratory QC:	Additional Sampler Signature(s):	Cooler Temperature Upon Receipt:	Chain of Custody Seal Number:
	H1YQ0			

Analysis Key: **Concentration:** L = Low, M = Low/Medium, H = High **Type/Designate:** Composite = C, Grab = G **Custody Seal Intact?** ___ **Shipment Iced?** ___

VOA = CLP TCL Volatiles

TR Number: 8-043013577-120808-0002

LABORATORY COPY

PR provides preliminary results. Requests for preliminary results will increase analytical costs.
Send Copy to: Sample Management Office, Attn: Heather Bauer, CSC, 15000 Conference Center Dr., Chantilly, VA 20151-3819; Phone 703/818-4200; Fax 703/818-4602

Appendix E

Data Validation Reports and Laboratory Analytical Results

URS OPERATING SERVICES

1099 18th STREET
SUITE 710
DENVER, COLORADO 80202-1908
TEL: (303) 291-8200
FAX: (303) 291-8296

February 10, 2009

Ms. Gwen Christiansen
Site Assessment Manager
U.S. Environmental Protection Agency, Region 8
1595 Wynkoop Street, Mail Code: 8EPR-B
Denver, Colorado 80202-1129

SUBJECT: START3, EPA Region 8, Contract No. EP-W-05-050, TDD No. 0811-02 Data Validation Reports for 5600 S 900 E Plume, Salt Lake City, Utah

Dear Gwen:

Attached are copies of the Data Validation Reports for the 5600 South 900 East Plume site in Salt Lake City, Utah. The reports are for Case Number 38043 and Sample Delivery Groups (SDGs) H1YP6, H1YP7, H1YQ0, and H2563. The data validation was performed by Amy Gray and myself. Copies of the Data Validation Reports were also forwarded to Bob O'Brien with the Utah Department of Environmental Quality.

If you have any questions, please call me at 303-291-8209.

Very truly yours,

URS OPERATING SERVICES, INC.

Kenton J. Alexander
Senior Chemist / Subcontracts Manager

cc: Chuck Baker/UOS (w/o attachment)
Bob O'Brien UDEQ-OERR
File/UOS

DERR-2009-001131

REGION VIII
DATA VALIDATION REPORT
ORGANICS

Case No. / TDD No.	Site Name		Operable Unit
38043 / 0811-02	5600 S. 900 E. Plume		NA
RPM/OSC Name			
Gwen Christiansen			
Contractor Laboratory	**Contract No.**	**SDG No.**	**Laboratory DPO/Region**
A4 Scientific, Inc.	EPW05036	H1YP6	8

Review Assigned Date: January 16, 2009
Review Completion Date: February 09, 2009

Data Validator: Amy Gray
Report Reviewer: Kent Alexander

Sample ID	Matrix	Analysis
H1YP6	Water	CLP – Low Volatile Analysis by SOM01.2
H1YP9		

DATA QUALITY STATEMENT

( ) Data are ACCEPTABLE according to EPA Functional Guidelines with no qualifiers (flags) added by the reviewer.
( ) Data are UNACCEPTABLE according to EPA Functional Guidelines.
(X) Data are acceptable with QUALIFICATIONS noted in review.

PO Attention Required? Yes _____ No ___X__ If yes, list the items that require attention:

ORGANIC DATA VALIDATION REPORT

REVIEW NARRATIVE SUMMARY

This data package was reviewed according to the EPA document "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review,"June, 2008.

Raw data were reviewed for completeness and transcription accuracy onto the summary forms. Approximately 10-20% of the results reported in each of the samples, calibrations, and QC analyses were recalculated and verified. If problems were identified during the recalculation of results, a more thorough calculation check was performed.

The data package, SDG No. H1YP6, consisted two water samples for low level volatile organic compounds.

Sample Number	Volatile Compound	Qualifier	Reason For Qualification	Review Section
All Samples	Methylene Chloride	5.0 U / 10.0 U	Blank Contamination	8

1. DELIVERABLES

All deliverables were present.

VOA: Yes_X__ No____

Comments: None.

2. HOLDING TIMES AND PRESERVATION CRITERIA

All holding times and preservation criteria were met.

VOA: Yes _X__ No____

Comments: None.

3. BFB PERFORMANCE RESULTS

The bromofluorobenzene (BFB) performance results were within the specified control limits. All appropriate BFB results were included.

VOA: Yes _X__ No____

Comments: None.

4. INSTRUMENT CALIBRATIONS: INITIAL AND CONTINUING STANDARDS

Initial instrument calibrations were performed according to method requirements and met the specified control limits.

VOA: Yes ___ No_X_

Comments: Bromomethane higher than allowed by criteria, but all samples non-detect for bromomethane so no qualifiers were necessary.

Continuing instrument calibrations were performed according to method requirements and met specified control limits.

VOA: Yes_X__ No____

Comments: None.

5. SURROGATE COMPOUND RECOVERY

Surrogate compound recovery analysis was performed according to method requirements and results met specified control limits.

VOA: Yes_X_ No____

Comments: None.

6. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Matrix Spike/Matrix Spike Duplicate (MS/MSD) and blank spike/blank spike duplicate (BS/BSD) analyses were performed according to method requirements and results met recovery and precision limits.

VOA: Yes___ No____ NA_X_

Comments: Matrix spike / matrix spike duplicate was not requested.

7. INTERNAL STANDARD AREA

Internal standard area analysis was performed according to method requirements and results met specified control limits.

VOA: Yes _X__ No____

Comments: None.

8. LABORATORY BLANK ANALYSIS RESULTS

The laboratory blank analysis was performed according to method requirements and results met specified limits.

VOA: Yes_X_ No____

Comments: Methylene chloride contamination was found in both the method blank and the holding blank. The following table lists contaminants, their corresponding concentration found in the blanks and qualifiers added to the data.

Blank Target Compounds

Blank ID	Contaminant	Concentration Found in Blank (ug/L)	Associated Samples	Concentration Found in Sample (ug/L)	Qualifier/ Adjustment
VBLK56	Methylene Chloride	4.6	All	4.4 / 5.5	5.0 U / 10.0 U

9. SAMPLE RESULTS

The sample results were reviewed and all compound identifications were acceptable and met contract requirements.

VOA: Yes _X__ No____

Comments: None.

10. Additional Comments or Problems/Resolutions Not Addressed Above

VOA: Yes_X__ No____

Comments: The SDG Narrative table listed sample # H1YP7, which is not correct. It should have been listed as H1YP9.

ORGANIC DATA QUALITY ASSURANCE REVIEW

Region VIII

DATA QUALIFIER DEFINITIONS

For the purpose of Data Validation, the following code letters and associated definitions are provided for use by the data validator to summarize the data quality.

GENERAL QUALIFIERS for use with both INORGANIC and ORGANIC DATA

R - Reported value is "rejected." Resampling or reanalysis may be necessary to verify the presence or absence of the compound.

J - The associated numerical value is an estimated quantity because the Quality Control criteria were not met.

U J - The reported quantitation limit is estimated because Quality Control criteria were not met. Element or compound was not detected.

N J - Estimated value of a tentatively identified compound. (Identified with a CAS number.) ORGANICS analysis only.

U - The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.

1A - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO. H1YP6

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H1YP6

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 0009775-01

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: C6273.D

Level: (TRACE/LOW/MED) LOW Date Received: 12/04/2008

% Moisture: not dec. Date Analyzed: 12/05/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 5.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	5.0	U
74-87-3	Chloromethane	5.0	U
75-01-4	Vinyl chloride	5.0	U
74-83-9	Bromomethane	5.0	U
75-00-3	Chloroethane	5.0	U
75-69-4	Trichlorofluoromethane	5.0	U
75-35-4	1,1-Dichloroethene	5.0	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U
67-64-1	Acetone	11	
75-15-0	Carbon disulfide	5.0	U
79-20-9	Methyl acetate	5.0	U
75-09-2	Methylene chloride	5.5	B → 10.0U
156-60-5	trans-1,2-Dichloroethene	5.0	U
1634-04-4	Methyl tert-butyl ether	5.0	U
75-34-3	1,1-Dichloroethane	5.0	U
156-59-2	cis-1,2-Dichloroethene	5.0	U
78-93-3	2-Butanone	10	U
74-97-5	Bromochloromethane	5.0	U
67-66-3	Chloroform	5.0	U
71-55-6	1,1,1-Trichloroethane	5.0	U
110-82-7	Cyclohexane	5.0	U
56-23-5	Carbon tetrachloride	5.0	U
71-43-2	Benzene	5.0	U
107-06-2	1,2-Dichloroethane	5.0	U
123-91-1	1,4-Dioxane	100	U → R AKB 01-21-09

Report 1,4-Dioxane for Low-Medium VOA analysis only

AKB 01/23/09

1B - FORM I VOA-2
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
H1YP6

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H1YP6

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 0009775-01

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: C6273.D

Level: (TRACE/LOW/MED) LOW Date Received: 12/04/2008

% Moisture: not dec. Date Analyzed: 12/05/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 5.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	5.0	U
108-87-2	Methylcyclohexane	5.0	U
78-87-5	1,2-Dichloropropane	5.0	U
75-27-4	Bromodichloromethane	5.0	U
10061-01-5	cis-1,3-Dichloropropene	5.0	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	5.0	U
10061-02-6	trans-1,3-Dichloropropene	5.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
127-18-4	Tetrachloroethene	5.0	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U
108-90-7	Chlorobenzene	5.0	U
100-41-4	Ethylbenzene	5.0	U
95-47-6	o-Xylene	5.0	U
179601-23-1	m,p-Xylene	5.0	U
100-42-5	Styrene	5.0	U
75-25-2	Bromoform	5.0	U
98-82-8	Isopropylbenzene	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
541-73-1	1,3-Dichlorobenzene	5.0	U
106-46-7	1,4-Dichlorobenzene	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-chloropropane	5.0	U
120-82-1	1,2,4-Trichlorobenzene	5.0	U
87-61-6	1,2,3-Trichlorobenzene	5.0	U

AMC 01/28/09

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
H1YP6

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H1YP6

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 0009775-01

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: C6273.D

Level: (TRACE or LOW/MED) LOW Date Received: 12/04/2008

% Moisture: not dec. Date Analyzed: 12/05/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/L Purge Volume: 5.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01					
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1]EPA-designated Registry Number.

AWB 01/28/09

1A - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO. H1YP9 ✓

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H1YP6

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 0009775-02

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: C6274.D

Level: (TRACE/LOW/MED) LOW Date Received: 12/04/2008

% Moisture: not dec. Date Analyzed: 12/05/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 5.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	5.0	U
74-87-3	Chloromethane	5.0	U
75-01-4	Vinyl chloride	5.0	U
74-83-9	Bromomethane	5.0	U
75-00-3	Chloroethane	5.0	U
75-69-4	Trichlorofluoromethane	5.0	U
75-35-4	1,1-Dichloroethene	5.0	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U
67-64-1	Acetone	49	
75-15-0	Carbon disulfide	5.0	U
79-20-9	Methyl acetate	5.0	U
75-09-2	Methylene chloride	4.4	JB → 5.0U
156-60-5	trans-1,2-Dichloroethene	5.0	U
1634-04-4	Methyl tert-butyl ether	5.0	U
75-34-3	1,1-Dichloroethane	5.0	U
156-59-2	cis-1,2-Dichloroethene	5.0	U
78-93-3	2-Butanone	10	U
74-97-5	Bromochloromethane	5.0	U
67-66-3	Chloroform	5.0	U
71-55-6	1,1,1-Trichloroethane	5.0	U
110-82-7	Cyclohexane	5.0	U
56-23-5	Carbon tetrachloride	5.0	U
71-43-2	Benzene	5.0	U
107-06-2	1,2-Dichloroethane	5.0	U
123-91-1	1,4-Dioxane	100	U → R AMC 01-21-09

Report 1,4-Dioxane for Low-Medium VOA analysis only

AMC 01/28/09

1B - FORM I VOA-2
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
H1YP9

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H1YP6

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 0009775-02

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: C6274.D

Level: (TRACE/LOW/MED) LOW Date Received: 12/04/2008

% Moisture: not dec. Date Analyzed: 12/05/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 5.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	5.0	U
108-87-2	Methylcyclohexane	5.0	U
78-87-5	1,2-Dichloropropane	5.0	U
75-27-4	Bromodichloromethane	5.0	U
10061-01-5	cis-1,3-Dichloropropene	5.0	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	3.3	J
10061-02-6	trans-1,3-Dichloropropene	5.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
127-18-4	Tetrachloroethene	5.0	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U
108-90-7	Chlorobenzene	5.0	U
100-41-4	Ethylbenzene	5.0	U
95-47-6	o-Xylene	5.0	U
179601-23-1	m,p-Xylene	5.0	U
100-42-5	Styrene	5.0	U
75-25-2	Bromoform	5.0	U
98-82-8	Isopropylbenzene	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
541-73-1	1,3-Dichlorobenzene	5.0	U
106-46-7	1,4-Dichlorobenzene	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-chloropropane	5.0	U
120-82-1	1,2,4-Trichlorobenzene	5.0	U
87-61-6	1,2,3-Trichlorobenzene	5.0	U

MEB 01/28/09

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
H1YP9

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H1YP6

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 0009775-02

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: C6274.D

Level: (TRACE or LOW/MED) LOW Date Received: 12/04/2008

% Moisture: not dec. Date Analyzed: 12/05/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/L Purge Volume: 5.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01					
02					
03					
04					
05					
06					
07					
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23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1]EPA-designated Registry Number.

AMB 01/28/09

DATA VALIDATION REPORT
ORGANICS

Case/TDD No.	Site Name		Operable Unit
38043 / 0811-02	5600 South 900 East Plume		
RPM/OSC Name			
Gwen Christiansen			
Contractor Laboratory	**Contract No.**	**SDG No.**	**Laboratory DPO/Region**
A4 Scientific, Inc.	EPW05036	H1YQ0	8

Review Assigned Date: January 9, 2009
Review Completion Date: January 30, 2009
Data Validator: Kent Alexander
Report Reviewer: Kim Ohlson

Sample ID	Matrix	Analysis
H1YQ0	Water	CLP – Volatile Analyses by SOM01.2
H1YQ1		
H1YQ2		
H1YQ3		
H1YQ4		
H1YQ5		
H1YQ6		
H1YQ7		
H1YQ8		
H2560		
H2561		
H29Q8		

DATA QUALITY STATEMENT

( ) Data are ACCEPTABLE according to EPA Functional Guidelines with no qualifiers (flags) added by the reviewer.
( ) Data are UNACCEPTABLE according to EPA Functional Guidelines.
(X) Data are acceptable with QUALIFICATIONS noted in review.

PO Attention Required? Yes _____ No ___X___ If yes, list the items that require attention:

ORGANIC DATA VALIDATION REPORT

REVIEW NARRATIVE SUMMARY

This data package was reviewed according to the EPA document "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review," June 2008.

Raw data were reviewed for completeness and transcription accuracy onto the summary forms. Approximately 10-20% of the results reported in each of the samples, calibrations, and QC analyses were recalculated and verified. If problems were identified during the recalculation of results, a more thorough calculation check was performed.

The data package, SDG No. H1YQ0, consisted of 12 water samples for CLP low volatile organic analyses by SOM01.2.

The following tables list data qualifiers added to the data. (Please see Data Qualifier Definitions, attached to the end of this report.)

Sample Number	Volatile Compound	Qualifier	Reason For Qualification	Review Section
H1YQ4, H1YQ5, H1YQ7, H2561	Bromomethane	UJ	Continuing calibration %D > 25%	4
H1YQ6	Vinyl chloride	J/UJ	DMC percent recovery below QC limits	5
H1YQ6, H1YQ7, H1YQ8	Dichlorodifluoromethane Chloromethane Bromomethane Chloroethane Carbon disulfide			
H1YQ4	Acetone 2-Butanone			
H1YQ0, H1YQ1, H1YQ2, H1YQ6	Cyclohexane Methylcyclohexane 1,2-Dichloropropane Bromodichloromethane			
H1YQ3, H2560, H2561	Trichloroethene Toluene Tetrachloroethene Ethylbenzene o-Xylene m,p-Xylene Sytrene Isopropylbenzene	J Detects	DMC percent recovery above QC limits	
H1YQ0, H1YQ1, H1YQ2, H1YQ3, H1YQ4, H1YQ5, H1YQ7DL, H2561, H2561DL	Methylene Choride	U	Blank contamination	8

Sample Number	Volatile Compound	Qualifier	Reason For Qualification	Review Section
H1YQ7	1,2-Dichloropropane Cyclohexane 1,1,2-Trichloroethane	U	Compound Identification	9
H2561	Acetone Cyclohexane			
H29Q8	Acetone			

1. DELIVERABLES

All deliverables were present as specified in the subcontract.

VOA: Yes_X_ No____

Comments: None.

2. HOLDING TIMES AND PRESERVATION CRITERIA

All holding times and preservation criteria were met.

VOA: Yes_X_ No____

Comments: The preserved water samples were analyzed within 14 days from sample collection.

According to the Chain-of-Custody records and case narrative, the sample cooler was received within the temperature range of 4 ± 2°C. Chain-of-custody, summary forms, and raw data were evaluated.

3. BFB PERFORMANCE RESULTS

The bromofluorobenzene (BFB) performance results were within the specified control limits. All appropriate BFB results were included.

VOA: Yes_X_ No____

Comments: BFB instrument performance checks were run for each 12 hours of analysis. Ion abundance criteria were met and were verified from raw data.

4. INSTRUMENT CALIBRATIONS: INITIAL AND CONTINUING STANDARDS

Initial instrument calibrations were performed according to method requirements and met the project specified control limits.

VOA: Yes____ No_X_

Comments: Initial calibration standards containing both target compounds and the deuterated monitoring compounds (DMCs) were analyzed at the correct frequency. The average relative response factors (RRFs) for the compounds identified by the Functional Guidelines as poor responders were greater than or equal to 0.01 (0.005 for 1,4-dioxane). The RRFs for all other target compounds were greater than or equal to 0.05. The percent relative standard deviations (%RSDs) of the RRFs were less than or equal to 50% for 1,4-dioxane, 40% for the poor responders and less than or equal to 20% for all other analytes with the exceptions noted below. Summary forms and raw data were evaluated.

The following table lists the percent relative standard deviations (%RSDs) that were greater than criteria and the qualifiers added to the data:

Compound	%RSD	RRFs	Associated Samples	Qualifiers
Bromomethane	39.3%	--	H1YQ0 H1YQ1 H1YQ2 H1YQ3 H1YQ6 H1YQ8 H2560 H29Q8	None
Chloromethane Bromomethane 1,2,3-Trichlorobenzene	20.7% 26.2% 20.3%	--	H1YQ4 H1YQ5 H1YQ7 H2561	None

None of the above listed compounds were detected in the associated samples. The %RSD was high for Chloroethane-d5, no action is taken on DMCs.

Continuing instrument calibrations were performed according to method requirements and met project specified control limits.

VOA: Yes___ No_X_

Comments: Continuing calibration standards containing both target compounds and the DMCs were analyzed at the beginning and end of each 12-hour analysis period. The RRFs for the compounds identified by the Functional Guidelines as poor responders were greater than or equal to 0.01 (0.005 for 1,4-dioxane). The RRFs for all other target compounds were greater than or equal to 0.05. The opening standard percent differences (%Ds) of the RRFs were less than or equal to 50% for 1,4-dioxane, 40% for the poor responders and less than or equal to 25% for all other analytes with the following exceptions. All %Ds for the closing standards were less than 50% and all RRFs were greater than 0.01 (0.005 for 1,4-dioxane). Summary forms and raw data were evaluated.

The following table lists the %Ds in the opening standards that were greater than criteria and qualifiers added to the data:

Compound	RRFs	%D	Associated Samples	Qualifiers
Bromomethane	--	26.7%	H1YQ4 H1YQ5 H1YQ7 H2561	UJ

5. DEUTERATED MONITORING COMPOUNDS

Deuterated monitoring compound (DMC) recovery analysis was performed according to method requirements and results met specified control limits.

VOA: Yes___ No_X_

Comments: DMCs were added to all samples and blanks. Summary forms and raw data were evaluated. The following table lists the samples with DMC percent recoveries (%Rs) outside control limits and the qualifiers added to the data:

Sample Number	DMC	%R	QC Limits	Compounds	Qualifier
H1YQ6	Vinyl chloride-d3	53%	65-131%	Vinyl chloride	J/UJ
H1YQ6 H1YQ7 H1YQ8	Chloroethane-5	54% 66% 69%	71-131%	Dichlorodifluoromethane Chloromethane Bromomethane Chloroethane Carbon disulfide	
H1YQ4	2-Butanone-d5	47%	49-155%	Acetone 2-Butanone	
H1YQ0 H1YQ1 H1YQ2 H1YQ6	1,2-Dichloropropane-d6	75% 72% 73% 76%	79-124%	Cyclohexane Methylcyclohexane 1,2-Dichloropropane Bromodichloromethane	
H1YQ3 H2560 H2561	Toluene-d8	131% 126% 125%	77-121%	Trichloroethene Toluene Tetrachloroethene Ethylbenzene o-Xylene m,p-Xylene Sytrene Isopropylbenzene	J Detects

The recoveries for 1,2-Dichloropropane-d6 in the MS/MSD analyses exceeded QC limits. No action was required for these analyses because no qualification is taken on QC samples (i.e., blanks and MS/MSD).

6. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Matrix Spike/Matrix Spike Duplicate (MS/MSD) analyses were performed according to method requirements and results met recommended recovery and precision limits.

VOA: Yes_X__ No____

Comments: Matrix spike/matrix spike duplicate (MS/MSD) analyses were performed on sample H1YQ0. The percent recoveries and the relative percent differences (RPDs) were within the QC limits. Summary forms and raw data were evaluated.

7. INTERNAL STANDARD AREA

Internal standard area analysis was performed according to method requirements and results met specified control limits.

VOA: Yes_X_ No____

Comments: Internal standard area counts did not vary by more than a factor of two from the associated 12-hour calibration standard. The internal standard retention times did not vary more than ± 30 seconds from the retention time of the associated 12-hour calibration standards. Summary forms and raw data were evaluated.

8. LABORATORY BLANK ANALYSIS RESULTS

The laboratory blank analysis was performed according to method requirements and results met specified limits.

VOA: Yes____ No_X_

Comments: Method blank analyses were performed after the calibration standards and once for every 12-hour time period. A storage blank (VHBLKS1) was also analyzed. Summary forms and raw data were evaluated.

Contamination was detected in both method blanks and the storage blank as summarized in the following table. Quantitation limits in the associated samples were raised in accordance with the rules set forth in the "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review," June 2008.

Blank ID	Contaminant	Concentration Found in Blank (ug/L)	Associated Samples	Concentration Found in Sample (ug/L)	Qualifier/ Adjustment
VBLKTF VBLKTI VHBLK01	Methylene chloride	2.0 2.2 2.3	H1YQ0 H1YQ1 H1YQ2 H1YQ3 H1YQ4 H1YQ5 H2561	1.8 1.2 1.7 2.0 3.0 3.3 3.7	10 U
			H1YQ7DL H2561DL	140 130	500 U

There was also a TIC detected in the blank at a RT of 13.47 minutes. Two samples (H1YQ2 and H1YQ8) also had a TIC at that RT and were subsequently qualified as not detected.

9. SAMPLE RESULTS

The sample results were reviewed and all compound identifications were acceptable and met contract requirements.

VOA: Yes___ No_X_

Comments: The Sample relative retention times (RRTs) were within ± 0.06 RRT units of the standard RRT. Relative intensities of ions agreed within ±20% between standard and sample spectra. All samples results and CRQL were correctly calculated. There were several mass spectrum identifications that did not meet the criteria of a relative intensity greater than 10% were present in the sample spectrum.

Sample H1YQ7 had the result values for 1,2-dichloropropane, cyclohexane, and 1,1,2-trichlorothane qualified with a "U". Sample H2561 had the results values for acetone and cyclohexane qualified with a "U". Sample H29Q8 had the result for acetone qualified with a "U". The reviewer determined the mass spectrum of the sample did not match that of the reference standard.

Tentatively identified compounds (TICs) were qualitatively assessed by a mass spectral library search.

10. Additional Comments or Problems/Resolutions Not Addressed Above

VOA: Yes___ No_X_

Comments: None.

ORGANIC DATA QUALITY ASSURANCE REVIEW

Region VIII

DATA QUALIFIER DEFINITIONS

For the purpose of Data Validation, the following code letters and associated definitions are provided for use by the data validator to summarize the data quality.

GENERAL QUALIFIERS for use with both INORGANIC and ORGANIC DATA

R - Reported value is "rejected." Resampling or reanalysis may be necessary to verify the presence or absence of the compound.

J - The associated numerical value is an estimated quantity because the Quality Control criteria were not met.

U J - The reported quantitation limit is estimated because Quality Control criteria were not met. Element or compound was not detected.

N J - Estimated value of a tentatively identified compound. (Identified with a CAS number.) ORGANICS analysis only.

U - The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.

1A - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO. ✓
H1YQ0

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H1YQ0

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 0009799-01

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: H4778.D

Level: (TRACE/LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. Date Analyzed: 12/15/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 5.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q	
75-71-8	Dichlorodifluoromethane	5.0	U	
74-87-3	Chloromethane	5.0	U	
75-01-4	Vinyl chloride	5.0	U	
74-83-9	Bromomethane	5.0	U	UJ
75-00-3	Chloroethane	5.0	U	
75-69-4	Trichlorofluoromethane	5.0	U	
75-35-4	1,1-Dichloroethene	5.0	U	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	
67-64-1	Acetone	10	U	
75-15-0	Carbon disulfide	5.0	U	
79-20-9	Methyl acetate	5.0	U	
75-09-2	Methylene chloride	1.8	JB	10U
156-60-5	trans-1,2-Dichloroethene	5.0	U	
1634-04-4	Methyl tert-butyl ether	5.0	U	
75-34-3	1,1-Dichloroethane	5.0	U	
156-59-2	cis-1,2-Dichloroethene	5.0	U	
78-93-3	2-Butanone	10	U	
74-97-5	Bromochloromethane	5.0	U	
67-66-3	Chloroform	5.0	U	
71-55-6	1,1,1-Trichloroethane	5.0	U	
110-82-7	Cyclohexane	5.0	U	UJ
56-23-5	Carbon tetrachloride	5.0	U	
71-43-2	Benzene	5.0	U	
107-06-2	1,2-Dichloroethane	5.0	U	
123-91-1	1,4-Dioxane	100	U	

Report 1,4-Dioxane for Low-Medium VOA analysis only

KEA
1-30-09

1B - FORM I VOA-2
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
H1YQ0

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H1YQ0

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 0009799-01

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: H4778.D

Level: (TRACE/LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. Date Analyzed: 12/15/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 5.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	5.0	U
108-87-2	Methylcyclohexane	5.0	U
78-87-5	1,2-Dichloropropane	5.0	U
75-27-4	Bromodichloromethane	5.0	U
10061-01-5	cis-1,3-Dichloropropene	5.0	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	5.0	U
10061-02-6	trans-1,3-Dichloropropene	5.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
127-18-4	Tetrachloroethene	5.0	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U
108-90-7	Chlorobenzene	5.0	U
100-41-4	Ethylbenzene	5.0	U
95-47-6	o-Xylene	5.0	U
179601-23-1	m,p-Xylene	5.0	U
100-42-5	Styrene	5.0	U
75-25-2	Bromoform	5.0	U
98-82-8	Isopropylbenzene	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
541-73-1	1,3-Dichlorobenzene	5.0	U
106-46-7	1,4-Dichlorobenzene	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-chloropropane	5.0	U
120-82-1	1,2,4-Trichlorobenzene	5.0	U
87-61-6	1,2,3-Trichlorobenzene	5.0	U

UJ

KSA 1-30-09

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.: H1YQ0

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H1YQ0

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 0009799-01

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: H4778.D

Level: (TRACE or LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. Date Analyzed: 12/15/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/L Purge Volume: 5.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01	000556-67-2	Cyclotetrasiloxane, octamet.	11.38	11	JN
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1]EPA-designated Registry Number.

KSA 1-30-09

1A - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
H1YQ1

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H1YQ0

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 0009799-02

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: H4781.D

Level: (TRACE/LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. Date Analyzed: 12/15/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 5.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q	
75-71-8	Dichlorodifluoromethane	5.0	U	
74-87-3	Chloromethane	5.0	U	
75-01-4	Vinyl chloride	5.0	U	
74-83-9	Bromomethane	5.0	U	U
75-00-3	Chloroethane	5.0	U	
75-69-4	Trichlorofluoromethane	5.0	U	
75-35-4	1,1-Dichloroethene	5.0	U	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	
67-64-1	Acetone	10	U	
75-15-0	Carbon disulfide	5.0	U	
79-20-9	Methyl acetate	5.0	U	
75-09-2	Methylene chloride	1.2	JB	10 U
156-60-5	trans-1,2-Dichloroethene	5.0	U	
1634-04-4	Methyl tert-butyl ether	5.0	U	
75-34-3	1,1-Dichloroethane	5.0	U	
156-59-2	cis-1,2-Dichloroethene	5.0	U	
78-93-3	2-Butanone	10	U	
74-97-5	Bromochloromethane	5.0	U	
67-66-3	Chloroform	5.0	U	
71-55-6	1,1,1-Trichloroethane	5.0	U	
110-82-7	Cyclohexane	5.0	U	U
56-23-5	Carbon tetrachloride	5.0	U	
71-43-2	Benzene	5.0	U	
107-06-2	1,2-Dichloroethane	5.0	U	
123-91-1	1,4-Dioxane	100	U	

Report 1,4-Dioxane for Low-Medium VOA analysis only

K A 1-30-09

1B - FORM I VOA-2
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO. ✓
H1YQ1

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H1YQ0

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 0009799-02

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: H4781.D

Level: (TRACE/LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. Date Analyzed: 12/15/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 5.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	5.0	U
108-87-2	Methylcyclohexane	5.0	U
78-87-5	1,2-Dichloropropane	5.0	U
75-27-4	Bromodichloromethane	5.0	U
10061-01-5	cis-1,3-Dichloropropene	5.0	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	5.0	U
10061-02-6	trans-1,3-Dichloropropene	5.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
127-18-4	Tetrachloroethene	15	
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U
108-90-7	Chlorobenzene	5.0	U
100-41-4	Ethylbenzene	5.0	U
95-47-6	o-Xylene	5.0	U
179601-23-1	m,p-Xylene	5.0	U
100-42-5	Styrene	5.0	U
75-25-2	Bromoform	5.0	U
98-82-8	Isopropylbenzene	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
541-73-1	1,3-Dichlorobenzene	5.0	U
106-46-7	1,4-Dichlorobenzene	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-chloropropane	5.0	U
120-82-1	1,2,4-Trichlorobenzene	5.0	U
87-61-6	1,2,3-Trichlorobenzene	5.0	U

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KSA 1-30-09

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.: H1YQ1

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H1YQ0

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 0009799-02

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: H4781.D

Level: (TRACE or LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. Date Analyzed: 12/15/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/L Purge Volume: 5.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		UNKNOWN	7.64	7.2	J
02	000556-67-2	Cyclotetrasiloxane, octamet.	11.38	15	JN
03	005779-95-3	Benzaldehyde, 3,5-dimethyl-	14.82	6.2	JN
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
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16					
17					
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19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1]EPA-designated Registry Number.

KSA 1-30-09

1A - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
H1YQ2

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H1YQ0

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 0009799-03

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: H4733.D

Level: (TRACE/LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. Date Analyzed: 12/15/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 5.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q	
75-71-8	Dichlorodifluoromethane	5.0	U	
74-87-3	Chloromethane	5.0	U	
75-01-4	Vinyl chloride	5.0	U	
74-83-9	Bromomethane	5.0	U	UJ
75-00-3	Chloroethane	5.0	U	
75-69-4	Trichlorofluoromethane	5.0	U	
75-35-4	1,1-Dichloroethene	5.0	U	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	
67-64-1	Acetone	10	U	
75-15-0	Carbon disulfide	5.0	U	
79-20-9	Methyl acetate	5.0	U	
75-09-2	Methylene chloride	1.7	JB	10U
156-60-5	trans-1,2-Dichloroethene	5.0	U	
1634-04-4	Methyl tert-butyl ether	5.0	U	
75-34-3	1,1-Dichloroethane	5.0	U	
156-59-2	cis-1,2-Dichloroethene	5.0	U	
78-93-3	2-Butanone	10	U	
74-97-5	Bromochloromethane	5.0	U	
67-66-3	Chloroform	5.0	U	
71-55-6	1,1,1-Trichloroethane	5.0	U	
110-82-7	Cyclohexane	5.0	U	UJ
56-23-5	Carbon tetrachloride	5.0	U	
71-43-2	Benzene	5.0	U	
107-06-2	1,2-Dichloroethane	5.0	U	
123-91-1	1,4-Dioxane	100	U	

Report 1,4-Dioxane for Low-Medium VOA analysis only

KSA 1-30-09

1B - FORM I VOA-2
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
H1YQ2

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H1YQ0

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 0009799-03

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: H4783.D

Level: (TRACE/LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. Date Analyzed: 12/15/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 5.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	8.3	
108-87-2	Methylcyclohexane	5.0	U
78-87-5	1,2-Dichloropropane	5.0	U
75-27-4	Bromodichloromethane	5.0	U
10061-01-5	cis-1,3-Dichloropropene	5.0	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	5.0	U
10061-02-6	trans-1,3-Dichloropropene	5.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
127-18-4	Tetrachloroethene	71	
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U
108-90-7	Chlorobenzene	5.0	U
100-41-4	Ethylbenzene	5.0	U
95-47-6	o-Xylene	5.0	U
179601-23-1	m,p-Xylene	5.0	U
100-42-5	Styrene	5.0	U
75-25-2	Bromoform	5.0	U
98-82-8	Isopropylbenzene	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
541-73-1	1,3-Dichlorobenzene	5.0	U
106-46-7	1,4-Dichlorobenzene	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-chloropropane	5.0	U
120-82-1	1,2,4-Trichlorobenzene	5.0	U
87-61-6	1,2,3-Trichlorobenzene	5.0	U

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KBA 1-30-09

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.: H1YQ2

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H1YQ0

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 0009799-03

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: H4783.D

Level: (TRACE or LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. Date Analyzed: 12/15/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/L Purge Volume: 5.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01	000556-67-2	Cyclotetrasiloxane, octamet.	11.38	28	JN
02		UNKNOWN	13.47	6.1	J
03	005973-71-7	Benzaldehyde, 3,4-dimethyl-	14.82	5.1	JN
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1]EPA-designated Registry Number.

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KSA 1-30-09

1A - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
H1YQ3

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H1YQ0

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 0009799-04

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: H4788.D

Level: (TRACE/LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. Date Analyzed: 12/15/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 5.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	5.0	U
74-87-3	Chloromethane	5.0	U
75-01-4	Vinyl chloride	5.0	U
74-83-9	Bromomethane	5.0	U
75-00-3	Chloroethane	5.0	U
75-69-4	Trichlorofluoromethane	5.0	U
75-35-4	1,1-Dichloroethene	5.0	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U
67-64-1	Acetone	10	U
75-15-0	Carbon disulfide	5.0	U
79-20-9	Methyl acetate	5.0	U
75-09-2	Methylene chloride	2.0	JB
156-60-5	trans-1,2-Dichloroethene	5.0	U
1634-04-4	Methyl tert-butyl ether	5.0	U
75-34-3	1,1-Dichloroethane	5.0	U
156-59-2	cis-1,2-Dichloroethene	5.0	U
78-93-3	2-Butanone	10	U
74-97-5	Bromochloromethane	5.0	U
67-66-3	Chloroform	5.0	U
71-55-6	1,1,1-Trichloroethane	5.0	U
110-82-7	Cyclohexane	5.0	U
56-23-5	Carbon tetrachloride	5.0	U
71-43-2	Benzene	5.0	U
107-06-2	1,2-Dichloroethane	5.0	U
123-91-1	1,4-Dioxane	100	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

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10U

KBA 1-30-09

1B - FORM I VOA-2
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO. ✓
H1YQ3

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H1YQ0

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 0009799-04

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: H4788.D

Level: (TRACE/LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. Date Analyzed: 12/15/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 5.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	5.0	U
108-87-2	Methylcyclohexane	5.0	U
78-87-5	1,2-Dichloropropane	5.0	U
75-27-4	Bromodichloromethane	5.0	U
10061-01-5	cis-1,3-Dichloropropene	5.0	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	5.0	U
10061-02-6	trans-1,3-Dichloropropene	5.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
127-18-4	Tetrachloroethene	3.7	J
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U
108-90-7	Chlorobenzene	5.0	U
100-41-4	Ethylbenzene	5.0	U
95-47-6	o-Xylene	5.0	U
179601-23-1	m,p-Xylene	5.0	U
100-42-5	Styrene	5.0	U
75-25-2	Bromoform	5.0	U
98-82-8	Isopropylbenzene	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
541-73-1	1,3-Dichlorobenzene	5.0	U
106-46-7	1,4-Dichlorobenzene	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-chloropropane	5.0	U
120-82-1	1,2,4-Trichlorobenzene	5.0	U
87-61-6	1,2,3-Trichlorobenzene	5.0	U

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KSA
1-30-09

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.: H1YQ3

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H1YQ0

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 0009799-04

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: H4788.D

Level: (TRACE or LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. Date Analyzed: 12/15/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/L Purge Volume: 5.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		UNKNOWN	4.45	8.5	J
02	000556-67-2	Cyclotetrasiloxane, octamet.	11.38	5.2	JN
03	005973-71-7	Benzaldehyde, 3,4-dimethyl-	14.82	7.2	JN
04					
05					
06					
07					
08					
09					
10					
11					
12					
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23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A	18	

[1]EPA-designated Registry Number.

KSA 1-30-09

1A - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
H1YQ4

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H1YQ0

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 0009799-05

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: H4800.D

Level: (TRACE/LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. Date Analyzed: 12/17/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 5.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q	
75-71-8	Dichlorodifluoromethane	5.0	U	
74-87-3	Chloromethane	5.0	U	
75-01-4	Vinyl chloride	5.0	U	
74-83-9	Bromomethane	5.0	U	UJ
75-00-3	Chloroethane	5.0	U	
75-69-4	Trichlorofluoromethane	5.0	U	
75-35-4	1,1-Dichloroethene	5.0	U	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	
67-64-1	Acetone	10	U	UJ
75-15-0	Carbon disulfide	5.0	U	
79-20-9	Methyl acetate	5.0	U	
75-09-2	Methylene chloride	3.0	JB	10 U
156-60-5	trans-1,2-Dichloroethene	5.0	U	
1634-04-4	Methyl tert-butyl ether	5.0	U	
75-34-3	1,1-Dichloroethane	5.0	U	
156-59-2	cis-1,2-Dichloroethene	5.0	U	
78-93-3	2-Butanone	10	U	UJ
74-97-5	Bromochloromethane	5.0	U	
67-66-3	Chloroform	5.0	U	
71-55-6	1,1,1-Trichloroethane	5.0	U	
110-82-7	Cyclohexane	5.0	U	
56-23-5	Carbon tetrachloride	5.0	U	
71-43-2	Benzene	5.0	U	
107-06-2	1,2-Dichloroethane	5.0	U	
123-91-1	1,4-Dioxane	100	U	

Report 1,4-Dioxane for Low-Medium VOA analysis only

KsA 1-20-09

1B - FORM I VOA-2
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
H1YQ4

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H1YQ0

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 0009799-05

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: H4800.D

Level: (TRACE/LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. Date Analyzed: 12/17/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 5.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	5.0	U
108-87-2	Methylcyclohexane	5.0	U
78-87-5	1,2-Dichloropropane	5.0	U
75-27-4	Bromodichloromethane	5.0	U
10061-01-5	cis-1,3-Dichloropropene	5.0	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	5.0	U
10061-02-6	trans-1,3-Dichloropropene	5.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
127-18-4	Tetrachloroethene	5.0	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U
108-90-7	Chlorobenzene	5.0	U
100-41-4	Ethylbenzene	5.0	U
95-47-6	o-Xylene	5.0	U
179601-23-1	m,p-Xylene	5.0	U
100-42-5	Styrene	5.0	U
75-25-2	Bromoform	5.0	U
98-82-8	Isopropylbenzene	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
541-73-1	1,3-Dichlorobenzene	5.0	U
106-46-7	1,4-Dichlorobenzene	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-chloropropane	5.0	U
120-82-1	1,2,4-Trichlorobenzene	5.0	U
87-61-6	1,2,3-Trichlorobenzene	5.0	U

KSA 1-30-09

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.: H1YQ4

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H1YQ0

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 0009799-05

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: H4800.D

Level: (TRACE or LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. Date Analyzed: 12/17/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/L Purge Volume: 5.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01					
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1]EPA-designated Registry Number.

KSA 1-30-09

1A - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
H1YQ5

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H1YQ0

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 0009799-06

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: H4802.D

Level: (TRACE/LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. Date Analyzed: 12/17/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 5.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q	
75-71-8	Dichlorodifluoromethane	5.0	U	
74-87-3	Chloromethane	5.0	U	
75-01-4	Vinyl chloride	5.0	U	
74-83-9	Bromomethane	5.0	U	UJ
75-00-3	Chloroethane	5.0	U	
75-69-4	Trichlorofluoromethane	5.0	U	
75-35-4	1,1-Dichloroethene	5.0	U	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	
67-64-1	Acetone	10	U	
75-15-0	Carbon disulfide	5.0	U	
79-20-9	Methyl acetate	5.0	U	
75-09-2	Methylene chloride	3.3	JB	10U
156-60-5	trans-1,2-Dichloroethene	5.0	U	
1634-04-4	Methyl tert-butyl ether	5.0	U	
75-34-3	1,1-Dichloroethane	5.0	U	
156-59-2	cis-1,2-Dichloroethene	5.0	U	
78-93-3	2-Butanone	10	U	
74-97-5	Bromochloromethane	5.0	U	
67-66-3	Chloroform	5.0	U	
71-55-6	1,1,1-Trichloroethane	5.0	U	
110-82-7	Cyclohexane	5.0	U	
56-23-5	Carbon tetrachloride	5.0	U	
71-43-2	Benzene	5.0	U	
107-06-2	1,2-Dichloroethane	5.0	U	
123-91-1	1,4-Dioxane	100	U	

Report 1,4-Dioxane for Low-Medium VOA analysis only

K3A 1-30-09

1B - FORM I VOA-2
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
H1YQ5

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H1YQ0

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 0009799-06

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: H4802.D

Level: (TRACE/LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. Date Analyzed: 12/17/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 5.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	5.0	U
108-87-2	Methylcyclohexane	5.0	U
78-87-5	1,2-Dichloropropane	5.0	U
75-27-4	Bromodichloromethane	5.0	U
10061-01-5	cis-1,3-Dichloropropene	5.0	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	5.0	U
10061-02-6	trans-1,3-Dichloropropene	5.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
127-18-4	Tetrachloroethene	5.0	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U
108-90-7	Chlorobenzene	5.0	U
100-41-4	Ethylbenzene	5.0	U
95-47-6	o-Xylene	5.0	U
179601-23-1	m,p-Xylene	5.0	U
100-42-5	Styrene	5.0	U
75-25-2	Bromoform	5.0	U
98-82-8	Isopropylbenzene	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
541-73-1	1,3-Dichlorobenzene	5.0	U
106-46-7	1,4-Dichlorobenzene	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-chloropropane	5.0	U
120-82-1	1,2,4-Trichlorobenzene	5.0	U
87-61-6	1,2,3-Trichlorobenzene	5.0	U

KA 1-30-09

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
H1YQ5

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H1YQ0

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 0009799-06

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: H4802.D

Level: (TRACE or LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. Date Analyzed: 12/17/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/L Purge Volume: 5.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01	005973-71-7	Benzaldehyde, 3,4-dimethyl-	14.82	6.6	JN
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1]EPA-designated Registry Number.

KSA 1-30-09

1A - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
H1YQ6

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H1YQ0

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 0009799-07

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: H4784.D

Level: (TRACE/LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. Date Analyzed: 12/15/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 5.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q	
75-71-8	Dichlorodifluoromethane	5.0	U	UJ
74-87-3	Chloromethane	5.0	U	UJ
75-01-4	Vinyl chloride	5.0	U	UJ
74-83-9	Bromomethane	5.0	U	UJ
75-00-3	Chloroethane	5.0	U	UJ
75-69-4	Trichlorofluoromethane	5.0	U	
75-35-4	1,1-Dichloroethene	5.0	U	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	
67-64-1	Acetone	10	U	
75-15-0	Carbon disulfide	5.0	U	UJ
79-20-9	Methyl acetate	5.0	U	
75-09-2	Methylene chloride	5.0	U	
156-60-5	trans-1,2-Dichloroethene	5.0	U	
1634-04-4	Methyl tert-butyl ether	5.0	U	
75-34-3	1,1-Dichloroethane	5.0	U	
156-59-2	cis-1,2-Dichloroethene	5.0	U	
78-93-3	2-Butanone	10	U	
74-97-5	Bromochloromethane	5.0	U	
67-66-3	Chloroform	5.0	U	
71-55-6	1,1,1-Trichloroethane	5.0	U	
110-82-7	Cyclohexane	5.0	U	UJ
56-23-5	Carbon tetrachloride	5.0	U	
71-43-2	Benzene	5.0	U	
107-06-2	1,2-Dichloroethane	5.0	U	
123-91-1	1,4-Dioxane	100	U	

Report 1,4-Dioxane for Low-Medium VOA analysis only

VSA 1-30-09

1B - FORM I VOA-2
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
H1YQ6

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H1YQ0

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 0009799-07

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: H4784.D

Level: (TRACE/LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. Date Analyzed: 12/15/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 5.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	5.0	U
108-87-2	Methylcyclohexane	5.0	U
78-87-5	1,2-Dichloropropane	5.0	U
75-27-4	Bromodichloromethane	5.0	U
10061-01-5	cis-1,3-Dichloropropene	5.0	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	5.0	U
10061-02-6	trans-1,3-Dichloropropene	5.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
127-18-4	Tetrachloroethene	5.0	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U
108-90-7	Chlorobenzene	5.0	U
100-41-4	Ethylbenzene	5.0	U
95-47-6	o-Xylene	5.0	U
179601-23-1	m,p-Xylene	5.0	U
100-42-5	Styrene	5.0	U
75-25-2	Bromoform	5.0	U
98-82-8	Isopropylbenzene	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
541-73-1	1,3-Dichlorobenzene	5.0	U
106-46-7	1,4-Dichlorobenzene	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-chloropropane	5.0	U
120-82-1	1,2,4-Trichlorobenzene	5.0	U
87-61-6	1,2,3-Trichlorobenzene	5.0	U

UJ

KBA 1-30-09

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
H1YQ6

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H1YQ0

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 0009799-07

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: H4784.D

Level: (TRACE or LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. Date Analyzed: 12/15/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/L Purge Volume: 5.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01	000556-67-2	Cyclotetrasiloxane, octamet.	11.38	25	JN
02	015764-16-6	Benzaldehyde, 2,4-dimethyl-	14.82	6.6	JN
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1]EPA-designated Registry Number.

KSA 1-30-09

1A - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
H1YQ7

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H1YQ0

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 0009799-08

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: H4799.D

Level: (TRACE/LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. Date Analyzed: 12/17/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 5.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q	
75-71-8	Dichlorodifluoromethane	5.0	U	UJ
74-87-3	Chloromethane	5.0	U	↓
75-01-4	Vinyl chloride	150		
74-83-9	Bromomethane	5.0	U	UJ
75-00-3	Chloroethane	5.0	U	↓
75-69-4	Trichlorofluoromethane	5.0	U	
75-35-4	1,1-Dichloroethene	5.0	U	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	
67-64-1	Acetone	10	U	
75-15-0	Carbon disulfide	5.0	U	UJ
79-20-9	Methyl acetate	5.0	U	
75-09-2	Methylene chloride	5.0	U	
156-60-5	trans-1,2-Dichloroethene	82		
1634-04-4	Methyl tert-butyl ether	5.0	U	
75-34-3	1,1-Dichloroethane	5.0	U	
156-59-2	cis-1,2-Dichloroethene	3300	E	4700 D
78-93-3	2-Butanone	10	U	
74-97-5	Bromochloromethane	5.0	U	
67-66-3	Chloroform	5.0	U	
71-55-6	1,1,1-Trichloroethane	5.0	U	
110-82-7	Cyclohexane	79		U
56-23-5	Carbon tetrachloride	5.0	U	
71-43-2	Benzene	5.0	U	
107-06-2	1,2-Dichloroethane	5.0	U	
123-91-1	1,4-Dioxane	100	U	

Report 1,4-Dioxane for Low-Medium VOA analysis only

USE THE VALUE FROM DILUTION FOR CIS-1,2-DICHLOROETHENE

V3A 1-30-09

1B - FORM I VOA-2
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
H1YQ7

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H1YQ0

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 0009799-08

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: H4799.D

Level: (TRACE/LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. Date Analyzed: 12/17/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 5.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	97	
108-87-2	Methylcyclohexane	17	
78-87-5	1,2-Dichloropropane	6.5	U
75-27-4	Bromodichloromethane	5.0	U
10061-01-5	cis-1,3-Dichloropropene	5.0	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	12	
10061-02-6	trans-1,3-Dichloropropene	5.0	U
79-00-5	1,1,2-Trichloroethane	34	U
127-18-4	Tetrachloroethene	1700	E
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U
108-90-7	Chlorobenzene	5.0	U
100-41-4	Ethylbenzene	5.0	U
95-47-6	o-Xylene	5.0	U
179601-23-1	m,p-Xylene	5.0	U
100-42-5	Styrene	5.0	U
75-25-2	Bromoform	5.0	U
98-82-8	Isopropylbenzene	1.6	J
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
541-73-1	1,3-Dichlorobenzene	5.0	U
106-46-7	1,4-Dichlorobenzene	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-chloropropane	5.0	U
120-82-1	1,2,4-Trichlorobenzene	5.0	U
87-61-6	1,2,3-Trichlorobenzene	5.0	U

2300D

USE THE VALUE FROM DILUTION RUN FOR TETRACHLOROETHENE

K3A 1-30-09

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.: H1YQ7

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H1YQ0

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 0009799-08

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: H4799.D

Level: (TRACE or LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. Date Analyzed: 12/17/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/L Purge Volume: 5.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		UNKNOWN	4.79	53	J
02	000556-67-2	Cyclotetrasiloxane, octamet.	11.38	22	JN
03	003868-64-2	Pentalene, octahydro-2-methy	11.75	9.2	JN
04	000538-93-2	Benzene, (2-methylpropyl)-	12.17	14	JN
05	001074-55-1	Benzene, 1-methyl-4-propyl-	12.22	45	JN
06	000535-77-3	Benzene, 1-methyl-3-(1-meth.	12.63	14	JN
07	000496-11-7	Indane	12.70	48	JN
08	000105-05-5	Benzene, 1,4-diethyl-	12.74	15	JN
09	000824-90-8	1-Phenyl-1-butene	13.22	13	JN
10	007525-62-4	Benzene, 1-ethenyl-3-ethyl-	13.29	32	JN
11	004912-92-9	1H-Indene, 2,3-dihydro-1,1-.	13.46	13	JN
12	000874-35-1	1H-Indene, 2,3-dihydro-5-me.	13.98	19	JN
13	017059-48-2	1H-Indene, 2,3-dihydro-1,6-.	14.25	9.5	JN
14	004912-92-9	1H-Indene, 2,3-dihydro-1,1-.	14.34	12	JN
15	017059-48-2	1H-Indene, 2,3-dihydro-1,6-.	14.37	23	JN
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A	560	

[1]EPA-designated Registry Number.

KJA 1-30-09

1A - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
H1YQ7DL

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H1YQ0

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 0009799-08RE1

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: H4803.D

Level: (TRACE/LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. Date Analyzed: 12/17/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 50.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 5.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	250	U
74-87-3	Chloromethane	250	U
75-01-4	Vinyl chloride	160	JD
74-83-9	Bromomethane	250	U
75-00-3	Chloroethane	250	U
75-69-4	Trichlorofluoromethane	250	U
75-35-4	1,1-Dichloroethene	250	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	250	U
67-64-1	Acetone	500	U
75-15-0	Carbon disulfide	250	U
79-20-9	Methyl acetate	250	U
75-09-2	Methylene chloride	140	JBD
156-60-5	trans-1,2-Dichloroethene	85	JD
1634-04-4	Methyl tert-butyl ether	250	U
75-34-3	1,1-Dichloroethane	250	U
156-59-2	cis-1,2-Dichloroethene	4700	D
78-93-3	2-Butanone	500	U
74-97-5	Bromochloromethane	250	U
67-66-3	Chloroform	250	U
71-55-6	1,1,1-Trichloroethane	250	U
110-82-7	Cyclohexane	250	U
56-23-5	Carbon tetrachloride	250	U
71-43-2	Benzene	250	U
107-06-2	1,2-Dichloroethane	250	U
123-91-1	1,4-Dioxane	5000	U

500 U

Report 1,4-Dioxane for Low-Medium VOA analysis only

ONLY USE CIS-1,2-DICHLOROETHANE ! TETRACHLOROETHENE FROM DILUTION

1-30-09

1B - FORM I VOA-2
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
H1YQ7DL

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H1YQ0

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 0009799-08RE1

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: H4803.D

Level: (TRACE/LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. Date Analyzed: 12/17/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 50.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 5.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	110	JD
108-87-2	Methylcyclohexane	250	U
78-87-5	1,2-Dichloropropane	250	U
75-27-4	Bromodichloromethane	250	U
10061-01-5	cis-1,3-Dichloropropene	250	U
108-10-1	4-Methyl-2-pentanone	500	U
108-88-3	Toluene	250	U
10061-02-6	trans-1,3-Dichloropropene	250	U
79-00-5	1,1,2-Trichloroethane	250	U
127-18-4	Tetrachloroethene	2300	D
591-78-6	2-Hexanone	500	U
124-48-1	Dibromochloromethane	250	U
106-93-4	1,2-Dibromoethane	250	U
108-90-7	Chlorobenzene	250	U
100-41-4	Ethylbenzene	250	U
95-47-6	o-Xylene	250	U
179601-23-1	m,p-Xylene	250	U
100-42-5	Styrene	250	U
75-25-2	Bromoform	250	U
98-82-8	Isopropylbenzene	250	U
79-34-5	1,1,2,2-Tetrachloroethane	250	U
541-73-1	1,3-Dichlorobenzene	250	U
106-46-7	1,4-Dichlorobenzene	250	U
95-50-1	1,2-Dichlorobenzene	250	U
96-12-8	1,2-Dibromo-3-chloropropane	250	U
120-82-1	1,2,4-Trichlorobenzene	250	U
87-61-6	1,2,3-Trichlorobenzene	250	U

ONLY USE CIS-1,2-DICHLOROETHANE & TETRACHLOROETHENE FROM DILUTION

KSA 1-30-09

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.: H1YQ7DL

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H1YQ0

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 0009799-08RE1

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: H4803.D

Level: (TRACE or LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. Date Analyzed: 12/17/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 50.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/L Purge Volume: 5.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		UNKNOWN	13.47	270	JD
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1]EPA-designated Registry Number.

KA 1-30-09

1A - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
H1YQ8

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H1YQ0

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 0003799-09

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: H4785.D

Level: (TRACE/LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. Date Analyzed: 12/15/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 5.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q	
75-71-8	Dichlorodifluoromethane	5.0	U	UJ
74-87-3	Chloromethane	5.0	U	↓
75-01-4	Vinyl chloride	5.0	U	
74-83-9	Bromomethane	5.0	U	UJ
75-00-3	Chloroethane	5.0	U	↓
75-69-4	Trichlorofluoromethane	5.0	U	
75-35-4	1,1-Dichloroethene	5.0	U	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	
67-64-1	Acetone	10	U	
75-15-0	Carbon disulfide	5.0	U	UJ
79-20-9	Methyl acetate	5.0	U	
75-09-2	Methylene chloride	5.0	U	
156-60-5	trans-1,2-Dichloroethene	5.0	U	
1634-04-4	Methyl tert-butyl ether	5.0	U	
75-34-3	1,1-Dichloroethane	5.0	U	
156-59-2	cis-1,2-Dichloroethene	5.0	U	
78-93-3	2-Butanone	10	U	
74-97-5	Bromochloromethane	5.0	U	
67-66-3	Chloroform	5.0	U	
71-55-6	1,1,1-Trichloroethane	5.0	U	
110-82-7	Cyclohexane	5.0	U	
56-23-5	Carbon tetrachloride	5.0	U	
71-43-2	Benzene	5.0	U	
107-06-2	1,2-Dichloroethane	5.0	U	
123-91-1	1,4-Dioxane	100	U	

Report 1,4-Dioxane for Low-Medium VOA analysis only

1A 1-30-09

1B - FORM I VOA-2
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
H1YQ8

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H1YQ0

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 0009799-09

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: H4785.D

Level: (TRACE/LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. Date Analyzed: 12/15/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 5.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	5.0	U
108-87-2	Methylcyclohexane	5.0	U
78-87-5	1,2-Dichloropropane	5.0	U
75-27-4	Bromodichloromethane	5.0	U
10061-01-5	cis-1,3-Dichloropropene	5.0	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	5.0	U
10061-02-6	trans-1,3-Dichloropropene	5.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
127-18-4	Tetrachloroethene	5.0	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U
108-90-7	Chlorobenzene	5.0	U
100-41-4	Ethylbenzene	5.0	U
95-47-6	o-Xylene	5.0	U
179601-23-1	m,p-Xylene	5.0	U
100-42-5	Styrene	5.0	U
75-25-2	Bromoform	5.0	U
98-82-8	Isopropylbenzene	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
541-73-1	1,3-Dichlorobenzene	5.0	U
106-46-7	1,4-Dichlorobenzene	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-chloropropane	5.0	U
120-82-1	1,2,4-Trichlorobenzene	5.0	U
87-61-6	1,2,3-Trichlorobenzene	5.0	U

KBA 1-30-09

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
H1YQ8

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H1YQ0

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 0009799-09

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: H4785.D

Level: (TRACE or LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. Date Analyzed: 12/15/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/L Purge Volume: 5.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01	000556-67-2	Cyclotetrasiloxane, octamet.	11.38	44	JN
02		UNKNOWN	13.47	5.1	J
03	005779-95-3	Benzaldehyde, 3,5-dimethyl-	14.82	6.2	JN
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
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19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1]EPA-designated Registry Number.

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KSA 1-30-09

1A - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
H2560

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H1YQ0

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 0009799-10

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: H4786.D

Level: (TRACE/LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. Date Analyzed: 12/15/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 5.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	5.0	U
74-87-3	Chloromethane	5.0	U
75-01-4	Vinyl chloride	5.0	U
74-83-9	Bromomethane	5.0	U
75-00-3	Chloroethane	5.0	U
75-69-4	Trichlorofluoromethane	5.0	U
75-35-4	1,1-Dichloroethene	5.0	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U
67-64-1	Acetone	10	U
75-15-0	Carbon disulfide	5.0	U
79-20-9	Methyl acetate	5.0	U
75-09-2	Methylene chloride	5.0	U
156-60-5	trans-1,2-Dichloroethene	5.0	U
1634-04-4	Methyl tert-butyl ether	5.0	U
75-34-3	1,1-Dichloroethane	5.0	U
156-59-2	cis-1,2-Dichloroethene	5.0	U
78-93-3	2-Butanone	10	U
74-97-5	Bromochloromethane	5.0	U
67-66-3	Chloroform	5.0	U
71-55-6	1,1,1-Trichloroethane	5.0	U
110-82-7	Cyclohexane	5.0	U
56-23-5	Carbon tetrachloride	5.0	U
71-43-2	Benzene	5.0	U
107-06-2	1,2-Dichloroethane	5.0	U
123-91-1	1,4-Dioxane	100	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

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KA 1-30-09

1B - FORM I VOA-2
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
H2560

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H1YQ0

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 0009799-10

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: H4786.D

Level: (TRACE/LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. Date Analyzed: 12/15/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 5.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	5.0	U
108-87-2	Methylcyclohexane	5.0	U
78-87-5	1,2-Dichloropropane	5.0	U
75-27-4	Bromodichloromethane	5.0	U
10061-01-5	cis-1,3-Dichloropropene	5.0	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	5.0	U
10061-02-6	trans-1,3-Dichloropropene	5.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
127-18-4	Tetrachloroethene	5.0	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U
108-90-7	Chlorobenzene	5.0	U
100-41-4	Ethylbenzene	5.0	U
95-47-6	o-Xylene	5.0	U
179601-23-1	m,p-Xylene	5.0	U
100-42-5	Styrene	5.0	U
75-25-2	Bromoform	5.0	U
98-82-8	Isopropylbenzene	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
541-73-1	1,3-Dichlorobenzene	5.0	U
106-46-7	1,4-Dichlorobenzene	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-chloropropane	5.0	U
120-82-1	1,2,4-Trichlorobenzene	5.0	U
87-61-6	1,2,3-Trichlorobenzene	5.0	U

KSA 1-30-09

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
H2560

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H1YQ0

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 0009799-10

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: H4786.D

Level: (TRACE or LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. Date Analyzed: 12/15/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/L Purge Volume: 5.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01	000556-67-2	Cyclotetrasiloxane, octamet.	11.38	38	JN
02	001470-94-6	1H-Inden-5-ol, 2,3-dihydro-	14.82	6.4	JN
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1]EPA-designated Registry Number.

KJA 1-30-09

1A - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
H2561

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H1YQ0

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 0009799-11

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: H4801.D

Level: (TRACE/LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. Date Analyzed: 12/17/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 5.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q	
75-71-8	Dichlorodifluoromethane	5.0	U	
74-87-3	Chloromethane	5.0	U	
75-01-4	Vinyl chloride	180		
74-83-9	Bromomethane	5.0	U	UJ
75-00-3	Chloroethane	5.0	U	
75-69-4	Trichlorofluoromethane	5.0	U	
75-35-4	1,1-Dichloroethene	5.0	U	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	
67-64-1	Acetone	100		U
75-15-0	Carbon disulfide	5.0	U	
79-20-9	Methyl acetate	5.0	U	
75-09-2	Methylene chloride	3.7	JB	10 U
156-60-5	trans-1,2-Dichloroethene	88		
1634-04-4	Methyl tert-butyl ether	5.0	U	
75-34-3	1,1-Dichloroethane	5.0	U	
156-59-2	cis-1,2-Dichloroethene	3200	E	41000 D
78-93-3	2-Butanone	10	U	
74-97-5	Bromochloromethane	5.0	U	
67-66-3	Chloroform	5.0	U	
71-55-6	1,1,1-Trichloroethane	5.0	U	
110-82-7	Cyclohexane	71		U
56-23-5	Carbon tetrachloride	5.0	U	
71-43-2	Benzene	5.0	U	
107-06-2	1,2-Dichloroethane	5.0	U	
123-91-1	1,4-Dioxane	100	U	

Report 1,4-Dioxane for Low-Medium VOA analysis only

USE THE VALUE FROM DILUTION RUN FOR CIS-1,2-DICHLOROETHENE

KSA 1-30-09

1B - FORM I VOA-2
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
H2561

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H1YQ0

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 0009799-11

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: H4801.D

Level: (TRACE/LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. Date Analyzed: 12/17/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 5.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	110	
108-87-2	Methylcyclohexane	16	
78-87-5	1,2-Dichloropropane	5.0	U
75-27-4	Bromodichloromethane	5.0	U
10061-01-5	cis-1,3-Dichloropropene	5.0	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	12	
10061-02-6	trans-1,3-Dichloropropene	5.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
127-18-4	Tetrachloroethene	1700	E
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U
108-90-7	Chlorobenzene	5.0	U
100-41-4	Ethylbenzene	5.0	U
95-47-6	o-Xylene	5.0	U
179601-23-1	m,p-Xylene	5.0	U
100-42-5	Styrene	5.0	U
75-25-2	Bromoform	5.0	U
98-82-8	Isopropylbenzene	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
541-73-1	1,3-Dichlorobenzene	5.0	U
106-46-7	1,4-Dichlorobenzene	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-chloropropane	5.0	U
120-82-1	1,2,4-Trichlorobenzene	5.0	U
87-61-6	1,2,3-Trichlorobenzene	5.0	U

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USE THE VALUE FROM DILUTION RUN FOR TETRACHLOROETHENE.

KBA 1-30-09

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
H2561

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H1YQ0

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 0009799-11

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: H4801.D

Level: (TRACE or LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. Date Analyzed: 12/17/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/L Purge Volume: 5.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01	000556-67-2	Cyclotetrasiloxane, octamet.	11.38	17	JN
02	000280-65-9	Bicyclo[3.3.1]nonane	11.75	9.0	JN
03		UNKNOWN	11.94	9.1	J
04	000538-93-2	Benzene, (2-methylpropyl)-	12.18	13	JN
05	001074-55-1	Benzene, 1-methyl-4-propyl-	12.22	45	JN
06	000527-84-4	Benzene, 1-methyl-2-(1-meth.	12.63	14	JN
07	000496-11-7	Indane	12.70	45	JN
08	000141-93-5	Benzene, 1,3-diethyl-	12.74	13	JN
09	007525-62-4	Benzene, 1-ethenyl-3-ethyl-	13.23	12	JN
10	000824-90-8	1-Phenyl-1-butene	13.29	31	JN
11	004912-92-9	1H-Indene, 2,3-dihydro-1,1-.	13.46	14	JN
12	000824-22-6	1H-Indene, 2,3-dihydro-4-me.	13.97	17	JN
13	004912-92-9	1H-Indene, 2,3-dihydro-1,1-.	14.35	11	JN
14	020836-11-7	1H-Indene,2,3-dihydro-2,2-d.	14.37	23	JN
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A	490	

[1]EPA-designated Registry Number.

KSA 1-30-09

1A - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
H2561DL

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H1YQ0

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 0009799-11RE1

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: H4804.D

Level: (TRACE/LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. Date Analyzed: 12/17/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 50.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 5.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
75-71-8	Dichlorodifluoromethane	250	U
74-87-3	Chloromethane	250	U
75-01-4	Vinyl chloride	130	JD
74-83-9	Bromomethane	250	U
75-00-3	Chloroethane	250	U
75-69-4	Trichlorofluoromethane	250	U
75-35-4	1,1-Dichloroethene	250	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	250	U
67-64-1	Acetone	250	JD
75-15-0	Carbon disulfide	250	U
79-20-9	Methyl acetate	250	U
75-09-2	Methylene chloride	130	JBD
156-60-5	trans-1,2-Dichloroethene	76	JD
1634-04-4	Methyl tert-butyl ether	250	U
75-34-3	1,1-Dichloroethane	0.78	JD
156-59-2	cis-1,2-Dichloroethene	4100	D
78-93-3	2-Butanone	500	U
74-97-5	Bromochloromethane	250	U
67-66-3	Chloroform	250	U
71-55-6	1,1,1-Trichloroethane	250	U
110-82-7	Cyclohexane	250	U
56-23-5	Carbon tetrachloride	250	U
71-43-2	Benzene	250	U
107-06-2	1,2-Dichloroethane	250	U
123-91-1	1,4-Dioxane	5000	U

500 U

Report 1,4-Dioxane for Low-Medium VOA analysis only

ONLY USE CIS-1,2-DICHLOROETHANE AND TETRACHLOROETHENE FROM DILUTION

KSA 1-30-09

1B - FORM I VOA-2
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
H2561DL

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H1YQ0

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 0009799-11RE1

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: H4804.D

Level: (TRACE/LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. Date Analyzed: 12/17/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 50.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 5.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	110	JD
108-87-2	Methylcyclohexane	250	U
78-87-5	1,2-Dichloropropane	250	U
75-27-4	Bromodichloromethane	250	U
10061-01-5	cis-1,3-Dichloropropene	250	U
108-10-1	4-Methyl-2-pentanone	500	U
108-88-3	Toluene	250	U
10061-02-6	trans-1,3-Dichloropropene	250	U
79-00-5	1,1,2-Trichloroethane	250	U
127-18-4	Tetrachloroethene	2100	D
591-78-6	2-Hexanone	500	U
124-48-1	Dibromochloromethane	250	U
106-93-4	1,2-Dibromoethane	250	U
108-90-7	Chlorobenzene	250	U
100-41-4	Ethylbenzene	250	U
95-47-6	o-Xylene	250	U
179601-23-1	m,p-Xylene	250	U
100-42-5	Styrene	250	U
75-25-2	Bromoform	250	U
98-82-8	Isopropylbenzene	250	U
79-34-5	1,1,2,2-Tetrachloroethane	250	U
541-73-1	1,3-Dichlorobenzene	250	U
106-46-7	1,4-Dichlorobenzene	250	U
95-50-1	1,2-Dichlorobenzene	250	U
96-12-8	1,2-Dibromo-3-chloropropane	250	U
120-82-1	1,2,4-Trichlorobenzene	250	U
87-61-6	1,2,3-Trichlorobenzene	250	U

ONLY USE cis-1,2-DICHLOROETHANE ! TETRACHLOROETHENE FROM DILUTION

KSA 1-30-09

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
H2561DL

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H1YQ0

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 0009799-11RE1

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: H4804.D

Level: (TRACE or LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. Date Analyzed: 12/17/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 50.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/L Purge Volume: 5.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01					
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
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19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1]EPA-designated Registry Number.

KeA 1-30-09

1A - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
H29Q8

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H1YQ0

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 0009799-13

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: H4787.D

Level: (TRACE/LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. Date Analyzed: 12/15/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 5.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q	
75-71-8	Dichlorodifluoromethane	5.0	U	
74-87-3	Chloromethane	5.0	U	
75-01-4	Vinyl chloride	5.0	U	
74-83-9	Bromomethane	5.0	U	UJ
75-00-3	Chloroethane	5.0	U	
75-69-4	Trichlorofluoromethane	5.0	U	
75-35-4	1,1-Dichloroethene	5.0	U	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	5.0	U	
67-64-1	Acetone	72		U
75-15-0	Carbon disulfide	5.0	U	
79-20-9	Methyl acetate	5.0	U	
75-09-2	Methylene chloride	5.0	U	
156-60-5	trans-1,2-Dichloroethene	5.0	U	
1634-04-4	Methyl tert-butyl ether	5.0	U	
75-34-3	1,1-Dichloroethane	5.0	U	
156-59-2	cis-1,2-Dichloroethene	5.0	U	
78-93-3	2-Butanone	10	U	
74-97-5	Bromochloromethane	5.0	U	
67-66-3	Chloroform	5.0	U	
71-55-6	1,1,1-Trichloroethane	5.0	U	
110-82-7	Cyclohexane	5.0	U	
56-23-5	Carbon tetrachloride	5.0	U	
71-43-2	Benzene	5.0	U	
107-06-2	1,2-Dichloroethane	5.0	U	
123-91-1	1,4-Dioxane	100	U	

Report 1,4-Dioxane for Low-Medium VOA analysis only

KSA 1-30-09

1B - FORM I VOA-2
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
H29Q8

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H1YQ0

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 0009799-13

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: H4787.D

Level: (TRACE/LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. Date Analyzed: 12/15/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 5.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/L	Q
79-01-6	Trichloroethene	5.0	U
108-87-2	Methylcyclohexane	5.0	U
78-87-5	1,2-Dichloropropane	5.0	U
75-27-4	Bromodichloromethane	5.0	U
10061-01-5	cis-1,3-Dichloropropene	5.0	U
108-10-1	4-Methyl-2-pentanone	10	U
108-88-3	Toluene	13	J
10061-02-6	trans-1,3-Dichloropropene	5.0	U
79-00-5	1,1,2-Trichloroethane	5.0	U
127-18-4	Tetrachloroethene	5.0	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	5.0	U
106-93-4	1,2-Dibromoethane	5.0	U
108-90-7	Chlorobenzene	5.0	U
100-41-4	Ethylbenzene	5.0	U
95-47-6	o-Xylene	5.0	U
179601-23-1	m,p-Xylene	5.0	U
100-42-5	Styrene	5.0	U
75-25-2	Bromoform	5.0	U
98-82-8	Isopropylbenzene	5.0	U
79-34-5	1,1,2,2-Tetrachloroethane	5.0	U
541-73-1	1,3-Dichlorobenzene	5.0	U
106-46-7	1,4-Dichlorobenzene	5.0	U
95-50-1	1,2-Dichlorobenzene	5.0	U
96-12-8	1,2-Dibromo-3-chloropropane	5.0	U
120-82-1	1,2,4-Trichlorobenzene	5.0	U
87-61-6	1,2,3-Trichlorobenzene	5.0	U

KSA 1-30-09

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
H29Q8

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H1YQ0

Matrix: (SOIL/SED/WATER) WATER Lab Sample ID: 0009799-13

Sample wt/vol: 5.00 (g/mL) mL Lab File ID: H4787.D

Level: (TRACE or LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. Date Analyzed: 12/15/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/L Purge Volume: 5.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01	000556-67-2	Cyclotetrasiloxane, octamet.	11.38	53	JN
02	005779-95-3	Benzaldehyde, 3,5-dimethyl-	14.82	6.8	JN
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1]EPA-designated Registry Number.

KSA 1-30-09

DATA VALIDATION REPORT
ORGANICS

Case No. / TDD No.	Site Name		Operable Unit
38043 / 0811-02	5600 S. 900 E. Plume		NA
RPM/OSC Name			
Gwen Christiansen			
Contractor Laboratory	**Contract No.**	**SDG No.**	**Laboratory DPO/Region**
A4 Scientific, Inc.	EPW05036	H2563	8

Review Assigned Date: February 02, 2009
Review Completion Date: February 04, 2009

Data Validator: Amy Gray
Report Reviewer: Kent Alexander

Sample ID	Matrix	Analysis
H2563	Soil	CLP – Low Level Volatile Analysis by SOM01.2
H2564		
H2565		
H2566		
H2567		
H2568		
H2569		
H29Q5		
H29Q6		
H29Q7		
H2569ME		CLP – Medium Level Volatile Analysis by SOM01.2
H29Q7ME		

DATA QUALITY STATEMENT

( ) Data are ACCEPTABLE according to EPA Functional Guidelines with no qualifiers (flags) added by the reviewer.
( ) Data are UNACCEPTABLE according to EPA Functional Guidelines.
(X) Data are acceptable with QUALIFICATIONS noted in review.

PO Attention Required? Yes _____ No ___X__ If yes, list the items that require attention:

ORGANIC DATA VALIDATION REPORT

REVIEW NARRATIVE SUMMARY

This data package was reviewed according to the EPA document "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review," June 2008.

Raw data were reviewed for completeness and transcription accuracy onto the summary forms. Approximately 10-20% of the results reported in each of the samples, calibrations, and QC analyses were recalculated and verified. If problems were identified during the recalculation of results, a more thorough calculation check was performed.

The data package, SDG No. H2563, consists of ten soil samples for Low Level Volatile Organic Compounds and two samples for Medium Level Volatile Organic Compounds.

The following tables list data qualifiers added to the data. (Please see Data Qualifier Definitions, attached to the end of this report.)

Sample Number	Volatile Compound	Qualifier	Reason For Qualification	Review Section
H2565	Benzene	UJ	Surrogate / DMC outside recovery limits	5
H29Q6	Acetone 2-Butanone Methylene chloride	J		
H29Q7	Vinyl chloride			
H29Q7ME	Dichlorodifluoromethane Chloromethane Bromomethane Chloroethane Carbon disulfide Cyclohexane Methylcyclohexane 1,2-Dichloropropane Bromodichloromethane	UJ		
H2563 H2564 H2566 H2567 H2568 H2569 H29Q5 H29Q6 H29Q7 H2569ME H29Q7ME	Methylene Chloride	1x or 2x CRQL U	Blank Contamination	8

1. DELIVERABLES

All deliverables were present.

VOA: Yes _X_ No____

Comments: None.

2. HOLDING TIMES AND PRESERVATION CRITERIA

All holding times and preservation criteria were met.

VOA: Yes_X_ No____

Comments: Cooler temperature blank was missing but cooler interior was at 4 °C and samples were received on ice.

3. INSTRUMENT PERFORMANCE CHECK RESULTS

The bromofluorobenzene (BFB) performance results were within the specified control limits. All appropriate BFB results were included.

VOA: Yes _X_ No____

Comments: A percent relative abundance of 7.7% was reported for the 175 ion for BFB60 on Form V. This was a rounding error and should have been reported as 7.8 %. This BFB was run on 12/08/08 on Instrument ID# C-5973 associated with all low level soil VOC analyses.

A continuing calibration verification (CCV) was run at least every 12 hours and met the corresponding opening or closing CCV requirements.

VOA: Yes _X_ No____

Comments: None.

4. INSTRUMENT CALIBRATIONS: INITIAL AND CONTINUING STANDARDS

Initial instrument calibrations were performed according to method requirements and met the specified control limits.

VOA: Yes___ No_X_

Comments: The following table lists the %RSD that exceeded 20% for the initial calibration compounds and qualifiers added to the data:

Compound	%RSD	Associated Samples	Qualifiers
Bromomethane	29.5	All low level soil samples	None
	39.3	All medium level soil samples	
1,2,3-Trichlorobenzene	23.0	All low level soil samples	

There were no qualifiers attached as there were no detections of either of the compounds listed.

Continuing instrument calibrations were performed according to method requirements and met specified control limits.

VOA: Yes___ No_X_

Comments: The following table lists the %D that exceeded 25% for the CCC compounds and qualifiers added to the data:

Compound	%D	Associated Samples	Qualifiers
Bromomethane	-28.3	All low level soil samples	J / UJ

5. SURROGATE COMPOUND RECOVERY

Surrogate compound recovery analysis was performed according to method requirements and results met specified control limits.

VOA: Yes ___ No_X_

Comments: The following table lists the volatile Deuterated Monitoring Compounds (DMCs) that were not within the recovery limits, the associated compounds and qualifiers added to the data:

Sample	DMC	Recovery Limits	DMC Recovery	Associated Target Compounds	Qualifiers
H29Q7ME	Chloroethane-d5	61 - 130	45	Dichlorodifluoromethane Chloromethane Bromomethane Chloroethane Carbon disulfide	UJ
	1,2-Dichloropropane-d6	74 - 124	73	Cyclohexane Methylcyclohexane 1,2-Dichloropropane Bromodichloromethane	

Sample	DMC	Recovery Limits	DMC Recovery	Associated Target Compounds	Qualifiers
H2565	Benzene-d6	80 - 121	76	Benzene	UJ
H29Q6	2-Butanone-d5	20 - 182	184	Acetone 2-Butanone	J
	1,2-Dichloroethene-d4	79 - 122	126	Trichlorofluoromethane 1,1,2-Trichloro-1,2,2-trifluoroethane Methyl acetate Methylene chloride Methyl-tert-butyl ether 1,1,1-Trichloroethane Carbon tetrachloride 1,2-Dibromomethane 1,2-Dichloroethane	J Detects
	1,4-Dioxane-d8	50 - 150	250	1,4-Dioxane	
H29Q7	Vinyl Chloride-d3	68 - 122	66	Vinyl Chloride	J

6. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Matrix Spike/Matrix Spike Duplicate (MS/MSD) and blank spike/blank spike duplicate (BS/BSD) analyses were performed according to method requirements and results met recovery and precision limits.

VOA: Yes _X_ No____

Comments: None.

7. INTERNAL STANDARD AREA

Internal standard area analysis was performed according to method requirements and results met specified control limits.

VOA: Yes _X_ No____

Comments: None.

8. LABORATORY BLANK ANALYSIS RESULTS

The laboratory blank analysis was performed according to method requirements and results met specified limits.

VOA: Yes____ No_X_

Comments: The following table lists contaminants, their corresponding concentration found in the blanks and qualifiers added to the data.

Blank Target Compounds

Blank ID	Contaminant	Concentration Found in Blank (ug/Kg)	Associated Samples	Concentration Found in Sample (ug/Kg)	Qualifier/ Adjustment
VBLK63	Methylene chloride	2.4	H2563	5.4	10.0 U
VBLK65		2.4	H2564	5.5	
VHBLK01		2.2	H2565	6.5	None
			H2566	4.4	6.0 U
			H2567	4.5	6.3 U
			H2568	4.3	6.0 U
			H2569	4.6	6.5 U
			H29Q5	4.4	
			H29Q7	6.0	6.0 U
			H29Q6	16	J
VBLKTD		110	H2569ME	320	410 U
			H29Q7ME	270	380 U

9. SAMPLE RESULTS

The sample results were reviewed and all compound identifications were acceptable and met contract requirements.

VOA: Yes_X_ No____

Comments: None.

10. Additional Comments or Problems/Resolutions Not Addressed Above

VOA: Yes___ No_X_

Comments: None.

ORGANIC DATA QUALITY ASSURANCE REVIEW

Region VIII

DATA QUALIFIER DEFINITIONS

For the purpose of Data Validation, the following code letters and associated definitions are provided for use by the data validator to summarize the data quality.

GENERAL QUALIFIERS for use with both INORGANIC and ORGANIC DATA

R - Reported value is "rejected." Resampling or reanalysis may be necessary to verify the presence or absence of the compound.

J - The associated numerical value is an estimated quantity because the Quality Control criteria were not met.

U J - The reported quantitation limit is estimated because Quality Control criteria were not met. Element or compound was not detected.

N J - Estimated value of a tentatively identified compound. (Identified with a CAS number.) ORGANICS analysis only.

U - The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.

REGION VIII
DATA VALIDATION REPORT
ORGANICS

Case No. / TDD No.	Site Name		Operable Unit
38043 / 0811-02	5600 S. 900 E. Plume		NA
RPM/OSC Name			
Gwen Christiansen			
Contractor Laboratory	**Contract No.**	**SDG No.**	**Laboratory DPO/Region**
A4 Scientific, Inc.	EPW05036	H1YP7	8

Review Assigned Date: January 28, 2009
Review Completion Date: February 02, 2009

Data Validator: Amy Gray
Report Reviewer: Kent Alexander

Sample ID	Matrix	Analysis
H1YP7	Soil	CLP – Low Volatile Analysis by SOM01.2
H1YP8		

DATA QUALITY STATEMENT

( ) Data are ACCEPTABLE according to EPA Functional Guidelines with no qualifiers (flags) added by the reviewer.
( ) Data are UNACCEPTABLE according to EPA Functional Guidelines.
(X) Data are acceptable with QUALIFICATIONS noted in review.

PO Attention Required? Yes _____ No ___X___ If yes, list the items that require attention:

ORGANIC DATA VALIDATION REPORT

REVIEW NARRATIVE SUMMARY

This data package was reviewed according to the EPA document "USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review," June, 2008.

Raw data were reviewed for completeness and transcription accuracy onto the summary forms. Approximately 10-20% of the results reported in each of the samples, calibrations, and QC analyses were recalculated and verified. If problems were identified during the recalculation of results, a more thorough calculation check was performed.

The data package, SDG No. H1YP7, consisted of two soil samples for low level volatile organic compounds.

Sample Number	Volatile Compound	Qualifier	Reason For Qualification	Review Section
H1YP7 H1YP8	Methylene Chloride	U / J	Blank Contamination	8

1. DELIVERABLES

All deliverables were present.

VOA: Yes _X___ No ____

Comments: None.

2. HOLDING TIMES AND PRESERVATION CRITERIA

All holding times and preservation criteria were met.

VOA: Yes_X_ No____

Comments: None.

3. BFB PERFORMANCE RESULTS

The bromofluorobenzene (BFB) performance results were within the specified control limits. All appropriate BFB results were included.

VOA: Yes _X__ No____

Comments: A BFB and two opening CCV's were utilized to ensure performance.

4. INSTRUMENT CALIBRATIONS: INITIAL AND CONTINUING STANDARDS

Initial instrument calibrations were performed according to method requirements and met the specified control limits.

VOA: Yes_X__ No____

Comments: None.

Continuing instrument calibrations were performed according to method requirements and met specified control limits.

VOA: Yes____ No_X_

Comments: C-CAL 1 (VSTD05061) had a % Difference for bromomethane of -28.3%, which is greater than the limit of ≤ ±25%. No qualifiers were added because the lab had already given both samples a "U" qualifier for bromomethane.

5. SURROGATE COMPOUND RECOVERY

Surrogate compound recovery analysis was performed according to method requirements and results met specified control limits.

VOA: Yes _X_ No____

Comments: There was a rounding error reported for 1,2-Dichlorethane-d4 (DCA) on Form II for sample number H1YP7. The percent recovery was reported as 91, but was actually 92.

6. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Matrix Spike/Matrix Spike Duplicate (MS/MSD) and blank spike/blank spike duplicate (BS/BSD) analyses were performed according to method requirements and results met recovery and precision limits.

VOA: Yes _X_ No____

Comments: None

7. INTERNAL STANDARD AREA

Internal standard area analysis was performed according to method requirements and results met specified control limits.

VOA: Yes _X_ No____

Comments: None

8. LABORATORY BLANK ANALYSIS RESULTS

The laboratory blank analysis was performed according to method requirements and results met specified limits.

VOA: Yes____ No_X_

Comments: The following table lists contaminants, their corresponding concentration found in the blanks and qualifiers added to the data.

Blank Target Compounds

Blank ID	Contaminant	Concentration Found in Blank (ug/Kg)	Associated Samples	Concentration Found in Sample (ug/Kg)	Qualifier/ Adjustment
VBLK61	Methylene Chloride	2.2	H1YP7	13	J
VHBLK01		5.6	H1YP8	9.3	U

9. SAMPLE RESULTS

The sample results were reviewed and all compound identifications were acceptable and met contract requirements.

VOA: Yes_X_ No____

Comments: None.

10. Additional Comments or Problems/Resolutions Not Addressed Above

VOA: Yes___ No_X_

Comments: None.

ORGANIC DATA QUALITY ASSURANCE REVIEW

Region VIII

DATA QUALIFIER DEFINITIONS

For the purpose of Data Validation, the following code letters and associated definitions are provided for use by the data validator to summarize the data quality.

GENERAL QUALIFIERS for use with both INORGANIC and ORGANIC DATA

R - Reported value is "rejected." Resampling or reanalysis may be necessary to verify the presence or absence of the compound.

J - The associated numerical value is an estimated quantity because the Quality Control criteria were not met.

U J - The reported quantitation limit is estimated because Quality Control criteria were not met. Element or compound was not detected.

N J - Estimated value of a tentatively identified compound. (Identified with a CAS number.) ORGANICS analysis only.

U - The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit.

1A - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
H1YP7

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H1YP7

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: 0009776-01

Sample wt/vol: 4.88 (g/mL) g Lab File ID: C6311.D

Level: (TRACE/LOW/MED) LOW Date Received: 12/04/2008

% Moisture: not dec. 28.4 Date Analyzed: 12/08/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 10.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
75-71-8	Dichlorodifluoromethane	7.2	U
74-87-3	Chloromethane	7.2	U
75-01-4	Vinyl chloride	7.2	U
74-83-9	Bromomethane	7.2	U
75-00-3	Chloroethane	7.2	U
75-69-4	Trichlorofluoromethane	7.2	U
75-35-4	1,1-Dichloroethene	7.2	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	7.2	U
67-64-1	Acetone	73	
75-15-0	Carbon disulfide	7.2	U
79-20-9	Methyl acetate	7.2	U
75-09-2	Methylene chloride	13	B → J
156-60-5	trans-1,2-Dichloroethene	7.2	U
1634-04-4	Methyl tert-butyl ether	7.2	U
75-34-3	1,1-Dichloroethane	7.2	U
156-59-2	cis-1,2-Dichloroethene	7.2	U
78-93-3	2-Butanone	14	U
74-97-5	Bromochloromethane	7.2	U
67-66-3	Chloroform	7.2	U
71-55-6	1,1,1-Trichloroethane	7.2	U
110-82-7	Cyclohexane	7.2	U
56-23-5	Carbon tetrachloride	7.2	U
71-43-2	Benzene	7.2	U
107-06-2	1,2-Dichloroethane	7.2	U
123-91-1	1,4-Dioxane	140	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

AKB 02-02-09

AKB 02-02-09

1B - FORM I VOA-2
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
H1YP7

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H1YP7

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: 0009776-01

Sample wt/vol: 4.88 (g/mL) g Lab File ID: C6311.D

Level: (TRACE/LOW/MED) LOW Date Received: 12/04/2008

% Moisture: not dec. 28.4 Date Analyzed: 12/08/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 10.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
79-01-6	Trichloroethene	7.2	U
108-87-2	Methylcyclohexane	7.2	U
78-87-5	1,2-Dichloropropane	7.2	U
75-27-4	Bromodichloromethane	7.2	U
10061-01-5	cis-1,3-Dichloropropene	7.2	U
108-10-1	4-Methyl-2-pentanone	14	U
108-88-3	Toluene	0.36	J
10061-02-6	trans-1,3-Dichloropropene	7.2	U
79-00-5	1,1,2-Trichloroethane	7.2	U
127-18-4	Tetrachloroethene	7.2	U
591-78-6	2-Hexanone	14	U
124-48-1	Dibromochloromethane	7.2	U
106-93-4	1,2-Dibromoethane	7.2	U
108-90-7	Chlorobenzene	7.2	U
100-41-4	Ethylbenzene	7.2	U
179601-23-1	m,p-Xylene	7.2	U
95-47-6	o-Xylene	7.2	U
100-42-5	Styrene	7.2	U
75-25-2	Bromoform	7.2	U
98-82-8	Isopropylbenzene	7.2	U
79-34-5	1,1,2,2-Tetrachloroethane	7.2	U
541-73-1	1,3-Dichlorobenzene	7.2	U
106-46-7	1,4-Dichlorobenzene	7.2	U
95-50-1	1,2-Dichlorobenzene	7.2	U
96-12-8	1,2-Dibromo-3-chloropropane	7.2	U
120-82-1	1,2,4-Trichlorobenzene	7.2	U
87-61-6	1,2,3-Trichlorobenzene	7.2	U

AKG 02-02-09

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.: H1YP7

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H1YP7

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: 0009776-01

Sample wt/vol: 4.88 (g/mL) g Lab File ID: C6311.D

Level: (TRACE or LOW/MED) LOW Date Received: 12/04/2008

% Moisture: not dec. 28.4 Date Analyzed: 12/08/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg Purge Volume: 10.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01					
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
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16					
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18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1]EPA-designated Registry Number.

AUB 02-02-09

1A - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
H1YP8

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H1YP7

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: 0009776-02

Sample wt/vol: 4.94 (g/mL) g Lab File ID: C6312.D

Level: (TRACE/LOW/MED) LOW Date Received: 12/04/2008

% Moisture: not dec. 16.2 Date Analyzed: 12/08/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 10.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
75-71-8	Dichlorodifluoromethane	6.0	U
74-87-3	Chloromethane	6.0	U
75-01-4	Vinyl chloride	6.0	U
74-83-9	Bromomethane	6.0	U
75-00-3	Chloroethane	6.0	U
75-69-4	Trichlorofluoromethane	6.0	U
75-35-4	1,1-Dichloroethene	6.0	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	6.0	U
67-64-1	Acetone	12	U
75-15-0	Carbon disulfide	6.0	U
79-20-9	Methyl acetate	6.0	U
75-09-2	Methylene chloride	9.3	B → U
156-60-5	trans-1,2-Dichloroethene	6.0	U
1634-04-4	Methyl tert-butyl ether	6.0	U
75-34-3	1,1-Dichloroethane	6.0	U
156-59-2	cis-1,2-Dichloroethene	6.0	U
78-93-3	2-Butanone	12	U
74-97-5	Bromochloromethane	6.0	U
67-66-3	Chloroform	6.0	U
71-55-6	1,1,1-Trichloroethane	6.0	U
110-82-7	Cyclohexane	6.0	U
56-23-5	Carbon tetrachloride	6.0	U
71-43-2	Benzene	6.0	U
107-06-2	1,2-Dichloroethane	6.0	U
123-91-1	1,4-Dioxane	120	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

AMB 02-02-09

1B - FORM I VOA-2
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
H1YP8

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H1YP7

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: 0009776-02

Sample wt/vol: 4.94 (g/mL) g Lab File ID: C6312.D

Level: (TRACE/LOW/MED) LOW Date Received: 12/04/2008

% Moisture: not dec. 16.2 Date Analyzed: 12/08/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 10.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
79-01-6	Trichloroethene	6.0	U
108-87-2	Methylcyclohexane	6.0	U
78-87-5	1,2-Dichloropropane	6.0	U
75-27-4	Bromodichloromethane	6.0	U
10061-01-5	cis-1,3-Dichloropropene	6.0	U
108-10-1	4-Methyl-2-pentanone	12	U
108-88-3	Toluene	6.0	U
10061-02-6	trans-1,3-Dichloropropene	6.0	U
79-00-5	1,1,2-Trichloroethane	6.0	U
127-18-4	Tetrachloroethene	6.0	U
591-78-6	2-Hexanone	12	U
124-48-1	Dibromochloromethane	6.0	U
106-93-4	1,2-Dibromoethane	6.0	U
108-90-7	Chlorobenzene	6.0	U
100-41-4	Ethylbenzene	6.0	U
179601-23-1	m,p-Xylene	6.0	U
95-47-6	o-Xylene	6.0	U
100-42-5	Styrene	6.0	U
75-25-2	Bromoform	6.0	U
98-82-8	Isopropylbenzene	6.0	U
79-34-5	1,1,2,2-Tetrachloroethane	6.0	U
541-73-1	1,3-Dichlorobenzene	6.0	U
106-46-7	1,4-Dichlorobenzene	6.0	U
95-50-1	1,2-Dichlorobenzene	6.0	U
96-12-8	1,2-Dibromo-3-chloropropane	6.0	U
120-82-1	1,2,4-Trichlorobenzene	6.0	U
87-61-6	1,2,3-Trichlorobenzene	6.0	U

AKB
02-02-09

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
H1YP8

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H1YP7

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: 0009776-02

Sample wt/vol: 4.94 (g/mL) g Lab File ID: C6312.D

Level: (TRACE or LOW/MED) LOW Date Received: 12/04/2008

% Moisture: not dec. 16.2 Date Analyzed: 12/08/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg Purge Volume: 10.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01					
02					
03					
04					
05					
06					
07					
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20					
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22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1]EPA-designated Registry Number.

AMB 02-02-09

1A - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
H2563

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H2563

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: 0009800-01

Sample wt/vol: 4.88 (g/mL) g Lab File ID: C6324.D

Level: (TRACE/LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. 15.6 Date Analyzed: 12/09/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 10.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
75-71-8	Dichlorodifluoromethane	6.1	U
74-87-3	Chloromethane	6.1	U
75-01-4	Vinyl chloride	6.1	U
74-83-9	Bromomethane	6.1	U
75-00-3	Chloroethane	6.1	U
75-69-4	Trichlorofluoromethane	6.1	U
75-35-4	1,1-Dichloroethene	6.1	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	6.1	U
67-64-1	Acetone	12	U
75-15-0	Carbon disulfide	6.1	U
79-20-9	Methyl acetate	6.1	U
75-09-2	Methylene chloride	5.4	JB → 10.0U
156-60-5	trans-1,2-Dichloroethene	6.1	U
1634-04-4	Methyl tert-butyl ether	6.1	U
75-34-3	1,1-Dichloroethane	6.1	U
156-59-2	cis-1,2-Dichloroethene	1.3	J
78-93-3	2-Butanone	12	U
74-97-5	Bromochloromethane	6.1	U
67-66-3	Chloroform	6.1	U
71-55-6	1,1,1-Trichloroethane	6.1	U
110-82-7	Cyclohexane	6.1	U
56-23-5	Carbon tetrachloride	6.1	U
71-43-2	Benzene	6.1	U
107-06-2	1,2-Dichloroethane	6.1	U
123-91-1	1,4-Dioxane	120	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

AKB
02-04-09

1B - FORM I VOA-2
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
H2563 ✓

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H2563

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: 0009800-01

Sample wt/vol: 4.88 (g/mL) g Lab File ID: C6324.D

Level: (TRACE/LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. 15.6 Date Analyzed: 12/09/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 10.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
79-01-6	Trichloroethene	6.1	U
108-87-2	Methylcyclohexane	6.1	U
78-87-5	1,2-Dichloropropane	6.1	U
75-27-4	Bromodichloromethane	6.1	U
10061-01-5	cis-1,3-Dichloropropene	6.1	U
108-10-1	4-Methyl-2-pentanone	12	U
108-88-3	Toluene	6.1	U
10061-02-6	trans-1,3-Dichloropropene	6.1	U
79-00-5	1,1,2-Trichloroethane	6.1	U
127-18-4	Tetrachloroethene	6.1	U
591-78-6	2-Hexanone	12	U
124-48-1	Dibromochloromethane	6.1	U
106-93-4	1,2-Dibromoethane	6.1	U
108-90-7	Chlorobenzene	6.1	U
100-41-4	Ethylbenzene	6.1	U
179601-23-1	m,p-Xylene	6.1	U
95-47-6	o-Xylene	6.1	U
100-42-5	Styrene	6.1	U
75-25-2	Bromoform	6.1	U
98-82-8	Isopropylbenzene	6.1	U
79-34-5	1,1,2,2-Tetrachloroethane	6.1	U
541-73-1	1,3-Dichlorobenzene	6.1	U
106-46-7	1,4-Dichlorobenzene	6.1	U
95-50-1	1,2-Dichlorobenzene	6.1	U
96-12-8	1,2-Dibromo-3-chloropropane	6.1	U
120-82-1	1,2,4-Trichlorobenzene	6.1	U
87-61-6	1,2,3-Trichlorobenzene	6.1	U

AMB 02-04-09

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
H2563

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H2563

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: 0009800-01

Sample wt/vol: 4.88 (g/mL) g Lab File ID: C6324.D

Level: (TRACE or LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. 15.6 Date Analyzed: 12/09/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg Purge Volume: 10.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01					
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1]EPA-designated Registry Number.

AMB 02-04-09

1A - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
H2564 ✓

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H2563

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: 0009800-02

Sample wt/vol: 4.97 (g/mL) g Lab File ID: C6325.D

Level: (TRACE/LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. 19.0 Date Analyzed: 12/09/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 10.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
75-71-8	Dichlorodifluoromethane	6.2	U
74-87-3	Chloromethane	6.2	U
75-01-4	Vinyl chloride	6.2	U
74-83-9	Bromomethane	6.2	U
75-00-3	Chloroethane	6.2	U
75-69-4	Trichlorofluoromethane	6.2	U
75-35-4	1,1-Dichloroethene	6.2	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	6.2	U
67-64-1	Acetone	12	U
75-15-0	Carbon disulfide	6.2	U
79-20-9	Methyl acetate	6.2	U
75-09-2	Methylene chloride	5.5	JB → 10.0 U
156-60-5	trans-1,2-Dichloroethene	6.2	U
1634-04-4	Methyl tert-butyl ether	6.2	U
75-34-3	1,1-Dichloroethane	6.2	U
156-59-2	cis-1,2-Dichloroethene	6.2	U
78-93-3	2-Butanone	12	U
74-97-5	Bromochloromethane	6.2	U
67-66-3	Chloroform	6.2	U
71-55-6	1,1,1-Trichloroethane	6.2	U
110-82-7	Cyclohexane	6.2	U
56-23-5	Carbon tetrachloride	6.2	U
71-43-2	Benzene	6.2	U
107-06-2	1,2-Dichloroethane	6.2	U
123-91-1	1,4-Dioxane	120	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

AMG 02-04-09

1B - FORM I VOA-2
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
H2564

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H2563

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: 0009800-02

Sample wt/vol: 4.97 (g/mL) g Lab File ID: C6325.D

Level: (TRACE/LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. 19.0 Date Analyzed: 12/09/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 10.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
79-01-6	Trichloroethene	6.2	U
108-87-2	Methylcyclohexane	6.2	U
78-87-5	1,2-Dichloropropane	6.2	U
75-27-4	Bromodichloromethane	6.2	U
10061-01-5	cis-1,3-Dichloropropene	6.2	U
108-10-1	4-Methyl-2-pentanone	12	U
108-88-3	Toluene	6.2	U
10061-02-6	trans-1,3-Dichloropropene	6.2	U
79-00-5	1,1,2-Trichloroethane	6.2	U
127-18-4	Tetrachloroethene	6.2	U
591-78-6	2-Hexanone	12	U
124-48-1	Dibromochloromethane	6.2	U
106-93-4	1,2-Dibromoethane	6.2	U
108-90-7	Chlorobenzene	6.2	U
100-41-4	Ethylbenzene	6.2	U
179601-23-1	m,p-Xylene	6.2	U
95-47-6	o-Xylene	6.2	U
100-42-5	Styrene	6.2	U
75-25-2	Bromoform	6.2	U
98-82-8	Isopropylbenzene	6.2	U
79-34-5	1,1,2,2-Tetrachloroethane	6.2	U
541-73-1	1,3-Dichlorobenzene	6.2	U
106-46-7	1,4-Dichlorobenzene	6.2	U
95-50-1	1,2-Dichlorobenzene	6.2	U
96-12-8	1,2-Dibromo-3-chloropropane	6.2	U
120-82-1	1,2,4-Trichlorobenzene	6.2	U
87-61-6	1,2,3-Trichlorobenzene	6.2	U

AMB 02-04-09

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
H2564

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H2563

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: 0009800-02

Sample wt/vol: 4.97 (g/mL) g Lab File ID: C6325.D

Level: (TRACE or LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. 19.0 Date Analyzed: 12/09/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg Purge Volume: 10.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01					
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1]EPA-designated Registry Number.

AMB 02-04-09

00000044

1A - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
H2565

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H2563

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: 0009800-03

Sample wt/vol: 4.96 (g/mL) g Lab File ID: C6326.D

Level: (TRACE/LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. 22.8 Date Analyzed: 12/09/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 10.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
75-71-8	Dichlorodifluoromethane	6.5	U
74-87-3	Chloromethane	6.5	U
75-01-4	Vinyl chloride	6.5	U
74-83-9	Bromomethane	6.5	U
75-00-3	Chloroethane	6.5	U
75-69-4	Trichlorofluoromethane	6.5	U
75-35-4	1,1-Dichloroethene	6.5	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	6.5	U
67-64-1	Acetone	13	U
75-15-0	Carbon disulfide	6.5	U
79-20-9	Methyl acetate	6.5	U
75-09-2	Methylene chloride	6.5	U
156-60-5	trans-1,2-Dichloroethene	6.5	U
1634-04-4	Methyl tert-butyl ether	6.5	U
75-34-3	1,1-Dichloroethane	6.5	U
156-59-2	cis-1,2-Dichloroethene	6.5	U
78-93-3	2-Butanone	13	U
74-97-5	Bromochloromethane	6.5	U
67-66-3	Chloroform	12	
71-55-6	1,1,1-Trichloroethane	6.5	U
110-82-7	Cyclohexane	6.5	U
56-23-5	Carbon tetrachloride	6.5	U
71-43-2	Benzene	6.5	U → UJ
107-06-2	1,2-Dichloroethane	6.5	U
123-91-1	1,4-Dioxane	130	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

AMB 02-04-09

1B - FORM I VOA-2
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO. ✓
H2565

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H2563

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: 0009800-03

Sample wt/vol: 4.96 (g/mL) g Lab File ID: C6326.D

Level: (TRACE/LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. 22.8 Date Analyzed: 12/09/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 10.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
79-01-6	Trichloroethene	6.5	U
108-87-2	Methylcyclohexane	220	
78-87-5	1,2-Dichloropropane	6.5	U
75-27-4	Bromodichloromethane	6.5	U
10061-01-5	cis-1,3-Dichloropropene	6.5	U
108-10-1	4-Methyl-2-pentanone	13	U
108-88-3	Toluene	6.5	U
10061-02-6	trans-1,3-Dichloropropene	6.5	U
79-00-5	1,1,2-Trichloroethane	6.5	U
127-18-4	Tetrachloroethene	6.5	U
591-78-6	2-Hexanone	13	U
124-48-1	Dibromochloromethane	6.5	U
106-93-4	1,2-Dibromoethane	6.5	U
108-90-7	Chlorobenzene	6.5	U
100-41-4	Ethylbenzene	6.5	U
179601-23-1	m,p-Xylene	33	
95-47-6	o-Xylene	17	
100-42-5	Styrene	6.5	U
75-25-2	Bromoform	6.5	U
98-82-8	Isopropylbenzene	5.2	J
79-34-5	1,1,2,2-Tetrachloroethane	6.5	U
541-73-1	1,3-Dichlorobenzene	6.5	U
106-46-7	1,4-Dichlorobenzene	6.5	U
95-50-1	1,2-Dichlorobenzene	6.5	U
96-12-8	1,2-Dibromo-3-chloropropane	6.5	U
120-82-1	1,2,4-Trichlorobenzene	6.5	U
87-61-6	1,2,3-Trichlorobenzene	6.5	U

AKB 02-04-09

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
H2565

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H2563

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: 0009800-03

Sample wt/vol: 4.96 (g/mL) g Lab File ID: C6326.D

Level: (TRACE or LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. 22.8 Date Analyzed: 12/09/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg Purge Volume: 10.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		UNKNOWN	6.73	65	J
02	000756-02-5	1,4-Pentadiene, 2,3,3-trime.	9.52	40	JN
03	000526-73-8	Benzene, 1,2,3-trimethyl-	14.45	65	JN
04		UNKNOWN	14.66	63	J
05	001758-88-9	Benzene, 2-ethyl-1,4-dimethy	15.14	49	JN
06	003333-13-9	Benzene, 1-methyl-4-(2-prop.	15.26	49	JN
07	000095-93-2	Benzene, 1,2,4,5-tetramethyl	15.53	56	JN
08	002039-90-9	Benzene, 2-ethenyl-1,3-dime.	15.97	93	JN
09	000700-12-9	Benzene, pentamethyl-	16.28	110	JN
10		UNKNOWN	16.39	110	J
11		UNKNOWN	16.55	48	J
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A	4200	

[1]EPA-designated Registry Number.

AMB 02-04-09

1A - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
H2566

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H2563

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: 0009800-04

Sample wt/vol: 4.90 (g/mL) g Lab File ID: C6327.D

Level: (TRACE/LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. 15.3 Date Analyzed: 12/09/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 10.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
75-71-8	Dichlorodifluoromethane	6.0	U
74-87-3	Chloromethane	6.0	U
75-01-4	Vinyl chloride	6.0	U
74-83-9	Bromomethane	6.0	U
75-00-3	Chloroethane	6.0	U
75-69-4	Trichlorofluoromethane	6.0	U
75-35-4	1,1-Dichloroethene	6.0	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	6.0	U
67-64-1	Acetone	12	U
75-15-0	Carbon disulfide	6.0	U
79-20-9	Methyl acetate	6.0	U
75-09-2	Methylene chloride	4.4	JB → 6.0U
156-60-5	trans-1,2-Dichloroethene	6.0	U
1634-04-4	Methyl tert-butyl ether	6.0	U
75-34-3	1,1-Dichloroethane	6.0	U
156-59-2	cis-1,2-Dichloroethene	6.0	U
78-93-3	2-Butanone	12	U
74-97-5	Bromochloromethane	6.0	U
67-66-3	Chloroform	6.0	U
71-55-6	1,1,1-Trichloroethane	6.0	U
110-82-7	Cyclohexane	6.0	U
56-23-5	Carbon tetrachloride	6.0	U
71-43-2	Benzene	6.0	U
107-06-2	1,2-Dichloroethane	6.0	U
123-91-1	1,4-Dioxane	120	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

AMB 02-04-09

1B - FORM I VOA-2
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
H2566 ✓

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H2563

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: 0009800-04

Sample wt/vol: 4.90 (g/mL) g Lab File ID: C6327.D

Level: (TRACE/LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. 15.3 Date Analyzed: 12/09/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 10.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
79-01-6	Trichloroethene	6.0	U
108-87-2	Methylcyclohexane	6.0	U
78-87-5	1,2-Dichloropropane	6.0	U
75-27-4	Bromodichloromethane	6.0	U
10061-01-5	cis-1,3-Dichloropropene	6.0	U
108-10-1	4-Methyl-2-pentanone	12	U
108-88-3	Toluene	6.0	U
10061-02-6	trans-1,3-Dichloropropene	6.0	U
79-00-5	1,1,2-Trichloroethane	6.0	U
127-18-4	Tetrachloroethene	6.0	U
591-78-6	2-Hexanone	12	U
124-48-1	Dibromochloromethane	6.0	U
106-93-4	1,2-Dibromoethane	6.0	U
108-90-7	Chlorobenzene	6.0	U
100-41-4	Ethylbenzene	6.0	U
179601-23-1	m,p-Xylene	6.0	U
95-47-6	o-Xylene	6.0	U
100-42-5	Styrene	6.0	U
75-25-2	Bromoform	6.0	U
98-82-8	Isopropylbenzene	6.0	U
79-34-5	1,1,2,2-Tetrachloroethane	6.0	U
541-73-1	1,3-Dichlorobenzene	6.0	U
106-46-7	1,4-Dichlorobenzene	6.0	U
95-50-1	1,2-Dichlorobenzene	6.0	U
96-12-8	1,2-Dibromo-3-chloropropane	6.0	U
120-82-1	1,2,4-Trichlorobenzene	6.0	U
87-61-6	1,2,3-Trichlorobenzene	6.0	U

AMB 01-04-09

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
H2566

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H2563

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: 0009800-04

Sample wt/vol: 4.90 (g/mL) g Lab File ID: C6327.D

Level: (TRACE or LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. 15.3 Date Analyzed: 12/09/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:(ug/L or ug/kg) ug/kg Purge Volume: 10.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01					
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1]EPA-designated Registry Number.

AWK 02-04-09

1A - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
H2567 ✓

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H2563

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: 0009800-05

Sample wt/vol: 4.91 (g/mL) g Lab File ID: C6330.D

Level: (TRACE/LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. 19.1 Date Analyzed: 12/09/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 10.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
75-71-8	Dichlorodifluoromethane	6.3	U
74-87-3	Chloromethane	6.3	U
75-01-4	Vinyl chloride	6.3	U
74-83-9	Bromomethane	6.3	U
75-00-3	Chloroethane	6.3	U
75-69-4	Trichlorofluoromethane	6.3	U
75-35-4	1,1-Dichloroethene	6.3	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	6.3	U
67-64-1	Acetone	13	U
75-15-0	Carbon disulfide	6.3	U
79-20-9	Methyl acetate	6.3	U
75-09-2	Methylene chloride	4.5	JB → 6.34
156-60-5	trans-1,2-Dichloroethene	6.3	U
1634-04-4	Methyl tert-butyl ether	6.3	U
75-34-3	1,1-Dichloroethane	6.3	U
156-59-2	cis-1,2-Dichloroethene	1.1	J
78-93-3	2-Butanone	13	U
74-97-5	Bromochloromethane	6.3	U
67-66-3	Chloroform	6.3	U
71-55-6	1,1,1-Trichloroethane	6.3	U
110-82-7	Cyclohexane	6.3	U
56-23-5	Carbon tetrachloride	6.3	U
71-43-2	Benzene	6.3	U
107-06-2	1,2-Dichloroethane	6.3	U
123-91-1	1,4-Dioxane	130	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

AMB 02-04-09

1B - FORM I VOA-2
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
H2567 ✓

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H2563

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: 0009800-05

Sample wt/vol: 4.91 (g/mL) g Lab File ID: C6330.D

Level: (TRACE/LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. 19.1 Date Analyzed: 12/09/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 10.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
79-01-6	Trichloroethene	6.3	U
108-87-2	Methylcyclohexane	6.3	U
78-87-5	1,2-Dichloropropane	6.3	U
75-27-4	Bromodichloromethane	6.3	U
10061-01-5	cis-1,3-Dichloropropene	6.3	U
108-10-1	4-Methyl-2-pentanone	13	U
108-88-3	Toluene	6.3	U
10061-02-6	trans-1,3-Dichloropropene	6.3	U
79-00-5	1,1,2-Trichloroethane	6.3	U
127-18-4	Tetrachloroethene	6.3	U
591-78-6	2-Hexanone	13	U
124-48-1	Dibromochloromethane	6.3	U
106-93-4	1,2-Dibromoethane	6.3	U
108-90-7	Chlorobenzene	6.3	U
100-41-4	Ethylbenzene	6.3	U
179601-23-1	m,p-Xylene	6.3	U
95-47-6	o-Xylene	6.3	U
100-42-5	Styrene	6.3	U
75-25-2	Bromoform	6.3	U
98-82-8	Isopropylbenzene	6.3	U
79-34-5	1,1,2,2-Tetrachloroethane	6.3	U
541-73-1	1,3-Dichlorobenzene	6.3	U
106-46-7	1,4-Dichlorobenzene	6.3	U
95-50-1	1,2-Dichlorobenzene	6.3	U
96-12-8	1,2-Dibromo-3-chloropropane	6.3	U
120-82-1	1,2,4-Trichlorobenzene	6.3	U
87-61-6	1,2,3-Trichlorobenzene	6.3	U

MLG 02-04-09

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
H2567

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H2563

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: 0009800-05

Sample wt/vol: 4.91 (g/mL) g Lab File ID: C6330.D

Level: (TRACE or LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. 19.1 Date Analyzed: 12/09/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg Purge Volume: 10.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01					
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
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19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1]EPA-designated Registry Number.

AMC 02-04-09

1A - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
H2568 ✓

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H2563

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: 0009800-06

Sample wt/vol: 4.87 (g/mL) g Lab File ID: C6331.D

Level: (TRACE/LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. 14.4 Date Analyzed: 12/09/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 10.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
75-71-8	Dichlorodifluoromethane	6.0	U
74-87-3	Chloromethane	6.0	U
75-01-4	Vinyl chloride	6.0	U
74-83-9	Bromomethane	6.0	U
75-00-3	Chloroethane	6.0	U
75-69-4	Trichlorofluoromethane	6.0	U
75-35-4	1,1-Dichloroethene	6.0	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	6.0	U
67-64-1	Acetone	12	U
75-15-0	Carbon disulfide	6.0	U
79-20-9	Methyl acetate	6.0	U
75-09-2	Methylene chloride	4.3	JB → 6.0U
156-60-5	trans-1,2-Dichloroethene	6.0	U
1634-04-4	Methyl tert-butyl ether	6.0	U
75-34-3	1,1-Dichloroethane	6.0	U
156-59-2	cis-1,2-Dichloroethene	6.0	U
78-93-3	2-Butanone	12	U
74-97-5	Bromochloromethane	6.0	U
67-66-3	Chloroform	6.0	U
71-55-6	1,1,1-Trichloroethane	6.0	U
110-82-7	Cyclohexane	6.0	U
56-23-5	Carbon tetrachloride	6.0	U
71-43-2	Benzene	6.0	U
107-06-2	1,2-Dichloroethane	6.0	U
123-91-1	1,4-Dioxane	120	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

AMB 02-04-09

1B - FORM I VOA-2
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
H2568

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H2563

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: 0009800-06

Sample wt/vol: 4.87 (g/mL) g Lab File ID: C6331.D

Level: (TRACE/LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. 14.4 Date Analyzed: 12/09/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 10.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
79-01-6	Trichloroethene	6.0	U
108-87-2	Methylcyclohexane	6.0	U
78-87-5	1,2-Dichloropropane	6.0	U
75-27-4	Bromodichloromethane	6.0	U
10061-01-5	cis-1,3-Dichloropropene	6.0	U
108-10-1	4-Methyl-2-pentanone	12	U
108-88-3	Toluene	6.0	U
10061-02-6	trans-1,3-Dichloropropene	6.0	U
79-00-5	1,1,2-Trichloroethane	6.0	U
127-18-4	Tetrachloroethene	6.0	U
591-78-6	2-Hexanone	12	U
124-48-1	Dibromochloromethane	6.0	U
106-93-4	1,2-Dibromoethane	6.0	U
108-90-7	Chlorobenzene	6.0	U
100-41-4	Ethylbenzene	6.0	U
179601-23-1	m,p-Xylene	6.0	U
95-47-6	o-Xylene	6.0	U
100-42-5	Styrene	6.0	U
75-25-2	Bromoform	6.0	U
98-82-8	Isopropylbenzene	6.0	U
79-34-5	1,1,2,2-Tetrachloroethane	6.0	U
541-73-1	1,3-Dichlorobenzene	6.0	U
106-46-7	1,4-Dichlorobenzene	6.0	U
95-50-1	1,2-Dichlorobenzene	6.0	U
96-12-8	1,2-Dibromo-3-chloropropane	6.0	U
120-82-1	1,2,4-Trichlorobenzene	6.0	U
87-61-6	1,2,3-Trichlorobenzene	6.0	U

AMB 02-04-09

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
H2568

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H2563

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: 0009800-06

Sample wt/vol: 4.87 (g/mL) g Lab File ID: C6331.D

Level: (TRACE or LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. 14.4 Date Analyzed: 12/09/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg Purge Volume: 10.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01					
02					
03					
04					
05					
06					
07					
08					
09					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1]EPA-designated Registry Number.

AMB 02-04-09

1A - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
H2569 ✓

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H2563

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: 0009800-07

Sample wt/vol: 4.75 (g/mL) g Lab File ID: C6332.D

Level: (TRACE/LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. 18.6 Date Analyzed: 12/09/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 10.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
75-71-8	Dichlorodifluoromethane	6.5	U
74-87-3	Chloromethane	6.5	U
75-01-4	Vinyl chloride	82	
74-83-9	Bromomethane	6.5	U
75-00-3	Chloroethane	6.5	U
75-69-4	Trichlorofluoromethane	6.5	U
75-35-4	1,1-Dichloroethene	6.5	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	6.5	U
67-64-1	Acetone	13	U
75-15-0	Carbon disulfide	6.5	U
79-20-9	Methyl acetate	6.5	U
75-09-2	Methylene chloride	4.6	JB → 6.5U
156-60-5	trans-1,2-Dichloroethene	38	
1634-04-4	Methyl tert-butyl ether	6.5	U
75-34-3	1,1-Dichloroethane	6.5	U
156-59-2	cis-1,2-Dichloroethene	4100	E
78-93-3	2-Butanone	13	U
74-97-5	Bromochloromethane	6.5	U
67-66-3	Chloroform	6.5	U
71-55-6	1,1,1-Trichloroethane	6.5	U
110-82-7	Cyclohexane	14	
56-23-5	Carbon tetrachloride	6.5	U
71-43-2	Benzene	6.5	U
107-06-2	1,2-Dichloroethane	6.5	U
123-91-1	1,4-Dioxane	130	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

MB 01-04-09

1B - FORM I VOA-2
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
H2569 ✓

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H2563

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: 0009800-07

Sample wt/vol: 4.75 (g/mL) g Lab File ID: C6332.D

Level: (TRACE/LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. 18.6 Date Analyzed: 12/09/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 10.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
79-01-6	Trichloroethene	6.5	U
108-87-2	Methylcyclohexane	3.6	J
78-87-5	1,2-Dichloropropane	6.5	U
75-27-4	Bromodichloromethane	6.5	U
10061-01-5	cis-1,3-Dichloropropene	6.5	U
108-10-1	4-Methyl-2-pentanone	13	U
108-88-3	Toluene	8.1	
10061-02-6	trans-1,3-Dichloropropene	6.5	U
79-00-5	1,1,2-Trichloroethane	6.5	U
127-18-4	Tetrachloroethene	6.5	U
591-78-6	2-Hexanone	13	U
124-48-1	Dibromochloromethane	6.5	U
106-93-4	1,2-Dibromoethane	6.5	U
108-90-7	Chlorobenzene	6.5	U
100-41-4	Ethylbenzene	6.9	
179601-23-1	m,p-Xylene	6.5	U
95-47-6	o-Xylene	6.5	U
100-42-5	Styrene	6.5	U
75-25-2	Bromoform	6.5	U
98-82-8	Isopropylbenzene	1.3	J
79-34-5	1,1,2,2-Tetrachloroethane	6.5	U
541-73-1	1,3-Dichlorobenzene	6.5	U
106-46-7	1,4-Dichlorobenzene	6.5	U
95-50-1	1,2-Dichlorobenzene	6.5	U
96-12-8	1,2-Dibromo-3-chloropropane	6.5	U
120-82-1	1,2,4-Trichlorobenzene	6.5	U
87-61-6	1,2,3-Trichlorobenzene	6.5	U

AMB 02-04-09

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
H2569 ✓

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H2563

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: 0009800-07

Sample wt/vol: 4.75 (g/mL) g Lab File ID: C6332.D

Level: (TRACE or LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. 18.6 Date Analyzed: 12/09/2003

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg Purge Volume: 10.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01		UNKNOWN	6.31	12	J
02		UNKNOWN	13.29	12	J
03	000611-14-3	Benzene, 1-ethyl-2-methyl-	13.75	21	JN
04	000496-11-7	Indane	14.65	70	JN
05	001074-55-1	Benzene, 1-methyl-4-propyl-	14.93	10	JN
06	001758-88-9	Benzene, 2-ethyl-1,4-dimethy	15.02	13	JN
07	002870-04-4	Benzene, 2-ethyl-1,3-dimethy	15.12	23	JN
08	001005-64-7	Benzene, 1-butenyl-, (E)-	15.16	7.8	JN
09	000767-58-8	Indan, 1-methyl-	15.23	28	JN
10	000768-00-3	Benzene, (1-methyl-1-propen.	15.82	24	JN
11	002039-89-6	Benzene, 2-ethenyl-1,4-dime.	15.96	54	JN
12	017057-82-8	1H-Indene, 2,3-dihydro-1,2-.	16.38	8.3	JN
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A	45	

[1]EPA-designated Registry Number.

KC 02-04-09

1A - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
H29Q5 ✓

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H2563

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: 0009800-08

Sample wt/vol: 4.94 (g/mL) g Lab File ID: C6333.D

Level: (TRACE/LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. 21.6 Date Analyzed: 12/09/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 10.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
75-71-8	Dichlorodifluoromethane	6.5	U
74-87-3	Chloromethane	6.5	U
75-01-4	Vinyl chloride	6.5	U
74-83-9	Bromomethane	6.5	U
75-00-3	Chloroethane	6.5	U
75-69-4	Trichlorofluoromethane	6.5	U
75-35-4	1,1-Dichloroethene	6.5	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	6.5	U
67-64-1	Acetone	13	U
75-15-0	Carbon disulfide	6.5	U
79-20-9	Methyl acetate	6.5	U
75-09-2	Methylene chloride	4.4	JB → 6.5U
156-60-5	trans-1,2-Dichloroethene	6.5	U
1634-04-4	Methyl tert-butyl ether	6.5	U
75-34-3	1,1-Dichloroethane	6.5	U
156-59-2	cis-1,2-Dichloroethene	2.1	J
78-93-3	2-Butanone	13	U
74-97-5	Bromochloromethane	6.5	U
67-66-3	Chloroform	6.5	U
71-55-6	1,1,1-Trichloroethane	6.5	U
110-82-7	Cyclohexane	6.5	U
56-23-5	Carbon tetrachloride	6.5	U
71-43-2	Benzene	6.5	U
107-06-2	1,2-Dichloroethane	6.5	U
123-91-1	1,4-Dioxane	130	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

AMB 02-04-09

1B - FORM I VOA-2
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
H29Q5

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H2563

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: 0009800-08

Sample wt/vol: 4.94 (g/mL) g Lab File ID: C6333.D

Level: (TRACE/LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. 21.6 Date Analyzed: 12/09/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 10.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
79-01-6	Trichloroethene	6.5	U
108-87-2	Methylcyclohexane	6.5	U
78-87-5	1,2-Dichloropropane	6.5	U
75-27-4	Bromodichloromethane	6.5	U
10061-01-5	cis-1,3-Dichloropropene	6.5	U
108-10-1	4-Methyl-2-pentanone	13	U
108-88-3	Toluene	6.5	U
10061-02-6	trans-1,3-Dichloropropene	6.5	U
79-00-5	1,1,2-Trichloroethane	6.5	U
127-18-4	Tetrachloroethene	6.5	U
591-78-6	2-Hexanone	13	U
124-48-1	Dibromochloromethane	6.5	U
106-93-4	1,2-Dibromoethane	6.5	U
108-90-7	Chlorobenzene	6.5	U
100-41-4	Ethylbenzene	6.5	U
179601-23-1	m,p-Xylene	6.5	U
95-47-6	o-Xylene	6.5	U
100-42-5	Styrene	6.5	U
75-25-2	Bromoform	6.5	U
98-82-8	Isopropylbenzene	6.5	U
79-34-5	1,1,2,2-Tetrachloroethane	6.5	U
541-73-1	1,3-Dichlorobenzene	6.5	U
106-46-7	1,4-Dichlorobenzene	6.5	U
95-50-1	1,2-Dichlorobenzene	6.5	U
96-12-8	1,2-Dibromo-3-chloropropane	6.5	U
120-82-1	1,2,4-Trichlorobenzene	6.5	U
87-61-6	1,2,3-Trichlorobenzene	6.5	U

02-04-09

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
H29Q5

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H2563

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: 0009800-08

Sample wt/vol: 4.94 (g/mL) g Lab File ID: C6333.D

Level: (TRACE or LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. 21.6 Date Analyzed: 12/09/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg Purge Volume: 10.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01					
02					
03					
04					
05					
06					
07					
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25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1]EPA-designated Registry Number.

AMB 02-04-09

1A - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
H29Q6 ✓

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H2563

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: 0009800-09

Sample wt/vol: 4.61 (g/mL) g Lab File ID: C6342.D

Level: (TRACE/LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. 36.1 Date Analyzed: 12/10/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 10.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
75-71-8	Dichlorodifluoromethane	8.5	U
74-87-3	Chloromethane	8.5	U
75-01-4	Vinyl chloride	8.5	U
74-83-9	Bromomethane	8.5	U
75-00-3	Chloroethane	8.5	U
75-69-4	Trichlorofluoromethane	8.5	U
75-35-4	1,1-Dichloroethene	8.5	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	8.5	U
67-64-1	Acetone	110	→ J
75-15-0	Carbon disulfide	8.5	U
79-20-9	Methyl acetate	8.5	U
75-09-2	Methylene chloride	16	B → J
156-60-5	trans-1,2-Dichloroethene	8.5	U
1634-04-4	Methyl tert-butyl ether	8.5	U
75-34-3	1,1-Dichloroethane	8.5	U
156-59-2	cis-1,2-Dichloroethene	8.5	U
78-93-3	2-Butanone	35	→ J
74-97-5	Bromochloromethane	8.5	U
67-66-3	Chloroform	8.5	U
71-55-6	1,1,1-Trichloroethane	8.5	U
110-82-7	Cyclohexane	8.5	U
56-23-5	Carbon tetrachloride	8.5	U
71-43-2	Benzene	8.5	U
107-06-2	1,2-Dichloroethane	8.5	U
123-91-1	1,4-Dioxane	170	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

MLB 02-04-09

1B - FORM I VOA-2
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
H29Q6

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H2563

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: 0009800-09

Sample wt/vol: 4.61 (g/mL) g Lab File ID: C6342.D

Level: (TRACE/LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. 36.1 Date Analyzed: 12/10/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 10.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
79-01-6	Trichloroethene	8.5	U
108-87-2	Methylcyclohexane	8.5	U
78-87-5	1,2-Dichloropropane	8.5	U
75-27-4	Bromodichloromethane	8.5	U
10061-01-5	cis-1,3-Dichloropropene	8.5	U
108-10-1	4-Methyl-2-pentanone	17	U
108-88-3	Toluene	8.5	U
10061-02-6	trans-1,3-Dichloropropene	8.5	U
79-00-5	1,1,2-Trichloroethane	8.5	U
127-18-4	Tetrachloroethene	8.5	U
591-78-6	2-Hexanone	17	U
124-48-1	Dibromochloromethane	8.5	U
106-93-4	1,2-Dibromoethane	8.5	U
108-90-7	Chlorobenzene	8.5	U
100-41-4	Ethylbenzene	8.5	U
179601-23-1	m,p-Xylene	8.5	U
95-47-6	o-Xylene	8.5	U
100-42-5	Styrene	8.5	U
75-25-2	Bromoform	8.5	U
98-82-8	Isopropylbenzene	8.5	U
79-34-5	1,1,2,2-Tetrachloroethane	8.5	U
541-73-1	1,3-Dichlorobenzene	8.5	U
106-46-7	1,4-Dichlorobenzene	8.5	U
95-50-1	1,2-Dichlorobenzene	8.5	U
96-12-8	1,2-Dibromo-3-chloropropane	8.5	U
120-82-1	1,2,4-Trichlorobenzene	8.5	U
87-61-6	1,2,3-Trichlorobenzene	8.5	U

AMS 02-04-09

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
H29Q6

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H2563

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: 0009800-09

Sample wt/vol: 4.61 (g/mL) g Lab File ID: C6342.D

Level: (TRACE or LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. 36.1 Date Analyzed: 12/10/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg Purge Volume: 10.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01					
02					
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28					
29					
30					
	E966796[1]	Total Alkanes	N/A		

[1]EPA-designated Registry Number.

AMB 02-04-09

1A - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
H29Q7 ✓

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H2563

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: 0009800-10

Sample wt/vol: 4.96 (g/mL) g Lab File ID: C6335.D

Level: (TRACE/LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. 16.1 Date Analyzed: 12/09/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 10.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
75-71-8	Dichlorodifluoromethane	6.0	U
74-87-3	Chloromethane	6.0	U
75-01-4	Vinyl chloride	20	→ J
74-83-9	Bromomethane	6.0	U
75-00-3	Chloroethane	6.0	U
75-69-4	Trichlorofluoromethane	6.0	U
75-35-4	1,1-Dichloroethene	6.0	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	6.0	U
67-64-1	Acetone	24	
75-15-0	Carbon disulfide	6.0	U
79-20-9	Methyl acetate	6.0	U
75-09-2	Methylene chloride	3.5	JB → 6.04
156-60-5	trans-1,2-Dichloroethene	11	
1634-04-4	Methyl tert-butyl ether	6.0	U
75-34-3	1,1-Dichloroethane	6.0	U
156-59-2	cis-1,2-Dichloroethene	1100	E
78-93-3	2-Butanone	12	U
74-97-5	Bromochloromethane	6.0	U
67-66-3	Chloroform	6.0	U
71-55-6	1,1,1-Trichloroethane	6.0	U
110-82-7	Cyclohexane	5.5	J
56-23-5	Carbon tetrachloride	6.0	U
71-43-2	Benzene	6.0	U
107-06-2	1,2-Dichloroethane	6.0	U
123-91-1	1,4-Dioxane	120	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

AMB 02-04-09

1B - FORM I VOA-2
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
H29Q7 ✓

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H2563

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: 0009800-10

Sample wt/vol: 4.96 (g/mL) g Lab File ID: C6335.D

Level: (TRACE/LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. 16.1 Date Analyzed: 12/09/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

Purge Volume: 10.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
79-01-6	Trichloroethene	6.0	U
108-87-2	Methylcyclohexane	1.3	J
78-87-5	1,2-Dichloropropane	6.0	U → UJ AMG 02-10-09
75-27-4	Bromodichloromethane	6.0	U → UJ AMG 02-10-09
10061-01-5	cis-1,3-Dichloropropene	6.0	U
108-10-1	4-Methyl-2-pentanone	12	U
108-88-3	Toluene	2.5	J
10061-02-6	trans-1,3-Dichloropropene	6.0	U
79-00-5	1,1,2-Trichloroethane	6.0	U
127-18-4	Tetrachloroethene	6.0	U
591-78-6	2-Hexanone	12	U
124-48-1	Dibromochloromethane	6.0	U
106-93-4	1,2-Dibromoethane	6.0	U
108-90-7	Chlorobenzene	6.0	U
100-41-4	Ethylbenzene	6.0	U
179601-23-1	m,p-Xylene	1.6	J
95-47-6	o-Xylene	1.5	J
100-42-5	Styrene	6.0	U
75-25-2	Bromoform	6.0	U
98-82-8	Isopropylbenzene	6.0	U
79-34-5	1,1,2,2-Tetrachloroethane	6.0	U
541-73-1	1,3-Dichlorobenzene	6.0	U
106-46-7	1,4-Dichlorobenzene	6.0	U
95-50-1	1,2-Dichlorobenzene	6.0	U
96-12-8	1,2-Dibromo-3-chloropropane	6.0	U
120-82-1	1,2,4-Trichlorobenzene	6.0	U
87-61-6	1,2,3-Trichlorobenzene	6.0	U

AMG 02-04-09

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
H29Q7

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H2563

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: 0009800-10

Sample wt/vol: 4.96 (g/mL) g Lab File ID: C6335.D

Level: (TRACE or LOW/MED) LOW Date Received: 12/09/2008

% Moisture: not dec. 16.1 Date Analyzed: 12/09/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg Purge Volume: 10.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01	000611-14-3	Benzene, 1-ethyl-2-methyl-	13.75	25	JN
02	000526-73-8	Benzene, 1,2,3-trimethyl-	14.42	17	JN
03		UNKNOWN	14.65	30	J
04	001758-88-9	Benzene, 2-ethyl-1,4-dimethy	15.01	9.0	JN
05	000099-87-6	Benzene, 1-methyl-4-(1-meth.	15.12	15	JN
06	000824-90-8	1-Phenyl-1-butene	15.23	13	JN
07	003454-07-7	Benzene, 1-ethenyl-4-ethyl-	15.81	8.9	JN
08	002039-89-6	Benzene, 2-ethenyl-1,4-dime.	15.96	23	JN
09					
10					
11					
12					
13					
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27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A	16	

[1]EPA-designated Registry Number.

AMB 02-04-09

1A - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
H2569ME

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H2563

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: 0009800-07

Sample wt/vol: 4.40 (g/mL) g Lab File ID: H4767.D

Level: (TRACE/LOW/MED) MED Date Received: 12/09/2008

% Moisture: not dec. 18.6 Date Analyzed: 12/13/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: 5000 (uL) Soil Aliquot Volume: 100 (uL)

Purge Volume: 5.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
75-71-8	Dichlorodifluoromethane	410	U
74-87-3	Chloromethane	410	U
75-01-4	Vinyl chloride	410	U
74-83-9	Bromomethane	410	U
75-00-3	Chloroethane	410	U
75-69-4	Trichlorofluoromethane	410	U
75-35-4	1,1-Dichloroethene	410	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	410	U
67-64-1	Acetone	810	U
75-15-0	Carbon disulfide	410	U
79-20-9	Methyl acetate	410	U
75-09-2	Methylene chloride	320	JB → 410U
156-60-5	trans-1,2-Dichloroethene	410	U
1634-04-4	Methyl tert-butyl ether	410	U
75-34-3	1,1-Dichloroethane	410	U
156-59-2	cis-1,2-Dichloroethene	920	
78-93-3	2-Butanone	810	U
74-97-5	Bromochloromethane	410	U
67-66-3	Chloroform	410	U
71-55-6	1,1,1-Trichloroethane	410	U
110-82-7	Cyclohexane	410	U
56-23-5	Carbon tetrachloride	410	U
71-43-2	Benzene	41	J
107-06-2	1,2-Dichloroethane	410	U
123-91-1	1,4-Dioxane	8100	U

Report 1,4-Dioxane for Low-Medium VOA analysis only

AMK 02-04-09

1B - FORM I VOA-2
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
H2569ME

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H2563

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: 0009800-07

Sample wt/vol: 4.40 (g/mL) g Lab File ID: H4767.D

Level: (TRACE/LOW/MED) MED Date Received: 12/09/2008

% Moisture: not dec. 18.6 Date Analyzed: 12/13/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: 5000 (uL) Soil Aliquot Volume: 100 (uL)

Purge Volume: 5.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
79-01-6	Trichloroethene	410	U
108-87-2	Methylcyclohexane	410	U
78-87-5	1,2-Dichloropropane	410	U
75-27-4	Bromodichloromethane	410	U
10061-01-5	cis-1,3-Dichloropropene	410	U
108-10-1	4-Methyl-2-pentanone	810	U
108-88-3	Toluene	41	J
10061-02-6	trans-1,3-Dichloropropene	410	U
79-00-5	1,1,2-Trichloroethane	410	U
127-18-4	Tetrachloroethene	410	U
591-78-6	2-Hexanone	810	U
124-48-1	Dibromochloromethane	410	U
106-93-4	1,2-Dibromoethane	410	U
108-90-7	Chlorobenzene	410	U
100-41-4	Ethylbenzene	410	U
179601-23-1	m,p-Xylene	410	U
95-47-6	o-Xylene	410	U
100-42-5	Styrene	410	U
75-25-2	Bromoform	410	U
98-82-8	Isopropylbenzene	410	U
79-34-5	1,1,2,2-Tetrachloroethane	410	U
541-73-1	1,3-Dichlorobenzene	410	U
106-46-7	1,4-Dichlorobenzene	410	U
95-50-1	1,2-Dichlorobenzene	410	U
96-12-8	1,2-Dibromo-3-chloropropane	410	U
120-82-1	1,2,4-Trichlorobenzene	410	U
87-61-6	1,2,3-Trichlorobenzene	410	U

AMC 03-04-09

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
H2569ME

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H2563

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: 0009800-07

Sample wt/vol: 4.40 (g/mL) g Lab File ID: H4767.D

Level: (TRACE or LOW/MED) MED Date Received: 12/09/2008

% Moisture: not dec. 18.6 Date Analyzed: 12/13/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: 5000 (uL) Soil Aliquot Volume: 100 (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg Purge Volume: 5.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01					
02					
03					
04					
05					
06					
07					
08					
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11					
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19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A	8800	

[1]EPA-designated Registry Number.

02-04-09

1A - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
H29Q7ME

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H2563

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: 0009800-10

Sample wt/vol: 4.55 (g/mL) g Lab File ID: H4768.D

Level: (TRACE/LOW/MED) MED Date Received: 12/09/2008

% Moisture: not dec. 16.1 Date Analyzed: 12/13/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: 5000 (uL) Soil Aliquot Volume: 100 (uL)

Purge Volume: 5.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q	
75-71-8	Dichlorodifluoromethane	380	U	→UJ
74-87-3	Chloromethane	380	U	→UJ
75-01-4	Vinyl chloride	380	U	
74-83-9	Bromomethane	380	U	→UJ
75-00-3	Chloroethane	380	U	→UJ
75-69-4	Trichlorofluoromethane	380	U	
75-35-4	1,1-Dichloroethene	380	U	
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	380	U	
67-64-1	Acetone	750	U	
75-15-0	Carbon disulfide	380	U	→UJ
79-20-9	Methyl acetate	380	U	
75-09-2	Methylene chloride	270	JB	→380U
156-60-5	trans-1,2-Dichloroethene	380	U	
1634-04-4	Methyl tert-butyl ether	380	U	
75-34-3	1,1-Dichloroethane	380	U	
156-59-2	cis-1,2-Dichloroethene	630		
78-93-3	2-Butanone	490	J	
74-97-5	Bromochloromethane	380	U	
67-66-3	Chloroform	380	U	
71-55-6	1,1,1-Trichloroethane	380	U	
110-82-7	Cyclohexane	380	U	→UJ
56-23-5	Carbon tetrachloride	380	U	
71-43-2	Benzene	380	U	
107-06-2	1,2-Dichloroethane	380	U	
123-91-1	1,4-Dioxane	7500	U	

Report 1,4-Dioxane for Low-Medium VOA analysis only

AMB 02/04/09

1B - FORM I VOA-2
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.
H29Q7ME

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H2563

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: 0009800-10

Sample wt/vol: 4.55 (g/mL) g Lab File ID: H4768.D

Level: (TRACE/LOW/MED) MED Date Received: 12/09/2008

% Moisture: not dec. 16.1 Date Analyzed: 12/13/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: 5000 (uL) Soil Aliquot Volume: 100 (uL)

Purge Volume: 5.0 (mL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg	Q
79-01-6	Trichloroethene	380	U
108-87-2	Methylcyclohexane	380	U → UJ
78-87-5	1,2-Dichloropropane	380	U → UJ
75-27-4	Bromodichloromethane	380	U → UJ
10061-01-5	cis-1,3-Dichloropropene	380	U
108-10-1	4-Methyl-2-pentanone	750	U
108-88-3	Toluene	40	J
10061-02-6	trans-1,3-Dichloropropene	380	U
79-00-5	1,1,2-Trichloroethane	380	U
127-18-4	Tetrachloroethene	380	U
591-78-6	2-Hexanone	750	U
124-48-1	Dibromochloromethane	380	U
106-93-4	1,2-Dibromoethane	380	U
108-90-7	Chlorobenzene	380	U
100-41-4	Ethylbenzene	380	U
179601-23-1	m,p-Xylene	380	U
95-47-6	o-Xylene	380	U
100-42-5	Styrene	380	U
75-25-2	Bromoform	380	U
98-82-8	Isopropylbenzene	380	U
79-34-5	1,1,2,2-Tetrachloroethane	380	U
541-73-1	1,3-Dichlorobenzene	380	U
106-46-7	1,4-Dichlorobenzene	380	U
95-50-1	1,2-Dichlorobenzene	380	U
96-12-8	1,2-Dibromo-3-chloropropane	380	U
120-82-1	1,2,4-Trichlorobenzene	380	U
87-61-6	1,2,3-Trichlorobenzene	31	J

AMG 03-04-09

1J - FORM I VOA-TIC
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.
H29Q7ME

Lab Name: A4 SCIENTIFIC, INC. Contract: EPW05036

Lab Code: A4 Case No.: 38043 Mod. Ref No.: SDG No.: H2563

Matrix: (SOIL/SED/WATER) SOIL Lab Sample ID: 0009800-10

Sample wt/vol: 4.55 (g/mL) g Lab File ID: H4768.D

Level: (TRACE or LOW/MED) MED Date Received: 12/09/2008

% Moisture: not dec. 16.1 Date Analyzed: 12/13/2008

GC Column: DB-624 ID: 0.20 (mm) Dilution Factor: 1.0

Soil Extract Volume: 5000 (uL) Soil Aliquot Volume: 100 (uL)

CONCENTRATION UNITS: (ug/L or ug/kg) ug/kg Purge Volume: 5.0 (mL)

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
01					
02					
03					
04					
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25					
26					
27					
28					
29					
30					
	E966796[1]	Total Alkanes	N/A	3600	

[1]EPA-designated Registry Number.

AMB 02-02-09

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

36548685

TestAmerica Denver Lot #: D8L120290

Kent Alexander

URS Operating Services
1099 18th Street
Suite 710
Denver, CO 80202

Lori Parsons
Project Manager

December 23, 2008

Table of Contents

Standard Deliverables with Supporting Documentation

Report Contents	Number of Pages

Standard Deliverables

(*The **Report Cover** page is considered an integral part of this Standard Deliverable package. This report is incomplete unless all pages indicated in this Table of Contents are included.*)

- **Table of Contents**
- **Case Narrative**
- **Chain-of-Custody**
- **Sample Receiving Checklist**
- **Executive Summary – Detection Highlights**
- **Methods Summary**
- **Method/Analyst Summary**
- **Lot Sample Summary**
- **QC Data Association Summary**
- **Analytical Results**

Supporting Documentation

(Note: A one-page "Description of Supporting Documentation" is provided at the beginning of this section.).

	Check below when supporting documentation is present.
• Volatile GC/MS	
• Semivolatile GC/MS	
• Volatile GC	X
• Semivolatile GC	
• LC/MS or HPLC	
• Metals	
• General Chemistry	
• Subcontracted Data	

Case Narrative

The results included in this report have been reviewed for compliance with TestAmerica's Quality Assurance/Quality Control (QA/QC) plan. The test results relate only to the samples in this report and meet all requirements of NELAC with any exceptions noted below.

Dilution factors and footnotes have been provided to assist in the interpretation of the results. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interferences or analytes present at concentrations above the linear calibration curve, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

TestAmerica utilizes USEPA approved methods in all analytical work. The samples presented in this report were analyzed for the parameters listed on the analytical methods summary page in accordance with the methods indicated. A summary of quality control parameters is provided below.

Quality Control Summary for Lot D8L120290

Sample Receiving
TestAmerica Denver received one sample under chain of custody on December 12, 2008

The cooler temperature at receipt was acceptable at 4.0 °C.

The laboratory noted that the VOA vial received for the GRO analysis contained 5mm of headspace at the time of receipt. Sufficient volume remained to proceed with the requested analysis.

The laboratory also noted custody seals were not present at the time of receipt.

The sample containers were received intact.

Volatile Gasoline Range Organics Analysis by GC, Method 8015B

Each sample is analyzed to achieve the lowest possible reporting limits within the constraints of the method. Due to analytes present above the linear calibration curve, sample H2562 had to be analyzed at a dilution. The reporting limits have been adjusted relative to the dilution required. The surrogate could not be calculated because the extract was diluted beyond the ability to quantitate a recovery.

A low level of GRO was detected in the Method Blank associated with QC batch 8352276 at a level below the established reporting limit. Because the concentration in the Method Blank was below the reporting limit, corrective action was unnecessary.

No other anomalies were observed.

EPA **USEPA Contract Laboratory Program**
Generic Chain of Custody

40°C
12/2/05
12

Reference Case
Client No:
SDG No: L

Date Shipped:		Chain of Custody Record		Sampler Signature:		For Lab Use Only	
Carrier Name:	FedEx	Relinquished By	(Date / Time)	Received By	(Date / Time)	Lab Contract No:	
Airbill:		1 Kim Viehweg	12/8/8			Unit Price:	
Shipped to:	A4 Scientific 1544 Sawdust Road Suite 505 The Woodlands TX 77380 (281) 292-5277	2	1730		12/12/05 0930	Transfer To:	
		3				Lab Contract No:	
		4				Unit Price:	

SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE/ Bottles	STATION LOCATION	SAMPLE COLLECT DATE/TIME		FOR LAB USE ONLY Sample Condition On Receipt
H2562	Ground Water/ Kim Viehweg	/G	TPH (21)	8-338269 (HCL) (1)	7-11-extra	S: 12/4/2008	16:30	

Shipment for Case Complete?Y	Sample(s) to be used for laboratory QC:	Additional Sampler Signature(s):	Cooler Temperature Upon Receipt:	Chain of Custody Seal Number:	
Analysis Key:	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G		Custody Seal Intact? ___	Shipment Iced? ___

TPH = Total Petroleum Hydrocarbons

TR Number: 8-043013577-120808-0001

LABORATORY COPY

PR provides preliminary results. Requests for preliminary results will increase analytical costs.
Send Copy to: Sample Management Office, Attn: Heather Bauer, CSC, 15000 Conference Center Dr., Chantilly, VA 20151-3819; Phone 703/818-4200; Fax 703/818-4602

TestAmerica Denver

Sample Receiving Checklist

Lot #: D8L120290 Date/Time Received: 12/12/08 0915

Company Name & Sampling Site: UOS

PM to Complete This Section:	*Yes*	*No*		*Yes*	*No*
Residual chlorine check required:	☐	☐	Quarantined :	☐	☐

Quote #: 21705

Special Instructions:

Time Zone:
• EDT/EST • CDT/CST • MDT/MST • PDT/PST • OTHER

Unpacking Checks:

Cooler #(s): 1

Temperatures (°C): 4.0

N/A	*Yes*	*No*		*Initials*
☐	☐	☑	1. Cooler seals intact? (N/A if hand delivered) If no, document on CUR.	AG
☑	☑	☐	2. Coolers scanned for radiation. Is the reading ≤ to background levels? Yes: ✓ No:___	
☐	☑	☐	3. Chain of custody present? If no, document on CUR.	
☐	☐	☑	4. Bottles broken and/or are leaking? If yes, document on CUR.	
☐	☐	☑	5. Multiphasic samples obvious? If yes, document on CUR.	
☑	☑	☐	6. Proper container & preservatives used? (ref. Attachment D of SOP# DV-QA-0003) If no, document on CUR.	
☑	☐	☐	7. pH of all samples checked and meet requirements? If no, document on CUR.	
☐	☑	☐	8. Sufficient volume provided for all analysis requested? (ref. Attachment D of SOP# DV-QA-0003) If no, document on CUR, and contact PM before proceeding.	
☐	☑	☐	9. Did chain of custody agree with labels ID and samples received? If no, document on CUR.	
☐	☐	☑	10. Were VOA samples without headspace? If no, document on CUR.	
☐	☑	☐	11. Were VOA vials preserved? Preservative ☑HCl ☐4±2°C ☐Sodium Thiosulfate ☐ Ascorbic Acid	
☐	☐	☑	12. *Did samples require preservation with sodium thiosulfate?*	
☑	☐	☐	13. If yes to #11, did the samples contain residual chlorine? If yes, document on CUR.	
☑	☐	☐	14. Sediment present in dissolved/filtered bottles? If yes, document on CUR.	
☑	☐	☐	15. Is sufficient volume provided for client requested MS, MSD or matrix duplicates? If no, document on CUR, and contact PM before proceeding.	
☑	☐		16. Receipt date(s) > 48 hours past the collection date(s)? If yes, notify PA/PM.	
☐	☑		17. Are analyses with short holding times requested?	
☐	☑		18. Was a quick Turn Around (TAT) requested?	

TestAmerica Denver

Sample Receiving Checklist

Lot # DBL120290

Login Checks:

N/A	Yes	No		Initials
	☑	☐	19. Sufficient volume provided for all analysis requested? (ref. Attachment D of SOP# DV-QA-0003) If no, document on CUR, and contact PM before proceeding.	
☑	☐	☐	20. Is sufficient volume provided for client requested MS, MSD or matrix duplicates? If no, document on CUR, and contact PM before proceeding.	
	☑	☐	21. Did the chain of custody includes "received by" and "relinquished" by signatures, dates, and times?	
☐	☑	☐	22. Were special log in instructions read and followed?	
☑	☐	☐	23. Were AFCEE metals logged for refrigerated storage?	
	☑	☐	24. Were tests logged checked against the COC? Which samples were confirmed? 1	
☑	☐	☐	25. Was a Rush form completed for quick TAT?	
☑	☐	☐	26. Was a Short Hold form completed for any short holds?	
	☐	☑	27. Were special archiving instructions indicated in the General Comments? If so, what were they?	

Labeling and Storage Checks:

				Initials
☑	☐	☐	28. Was the subcontract COC signed and sent with samples to bottle prep?	
	☑	☐	29. Were sample labels double-checked by a second person?	
☑	☐	☐	30. Were sample bottles and COC double checked for dissolved/filtered metals by a second person?	
	☑	☐	31. Did the sample ID, Date, and Time from label match what was logged?	
☐	☐	☐	32. Were stickers for special archiving instructions affixed to each box? See #27	
☐	☐	☐	33. Were AFCEE metals stored refrigerated?	

Document any problems or discrepancies and the actions taken to resolve them on a Condition Upon Receipt Anomaly Report (CUR).

EXECUTIVE SUMMARY - Detection Highlights

D8L120290

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
H2562 12/04/08 16:30 001				
Gasoline Range Organics	3300 B	250	ug/L	SW846 8015B

METHODS SUMMARY

D8L120290

PARAMETER	ANALYTICAL METHOD	PREPARATION METHOD
Volatile Petroleum Hydrocarbons	SW846 8015B	SW846 5030

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

METHOD / ANALYST SUMMARY

D8L120290

ANALYTICAL METHOD	ANALYST	ANALYST ID
SW846 8015B	Brian Ream	000323

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

D8L120290

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
K4MD6	001	H2562	12/04/08	16:30

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

QC DATA ASSOCIATION SUMMARY

D8L120290

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WATER	SW846 8015B		8352276	8352213

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Volatile GC

CLP-Like Forms

Lot ID: D8L120290

Client: URS Operating Services

Method: SW846-8015B Mod, Gasoline Range Organics

Associated Samples: -001

Batch: 8352276

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

URS Operating Services

Analysis Data Sheet

Lab Name:	TESTAMERICA DENVER	**Client Sample ID:**	H2562
Lot/SDG Number:	D8L120290	**Lab Sample ID:**	D8L120290-001
Matrix:	WATER	**Lab WorkOrder:**	K4MD61AA
% Moisture:	N/A	**Date/Time Collected:**	12/04/08 16:30
Basis:	Wet	**Date/Time Received:**	12/12/08 09:30
Analysis Method:	8015B	**Date Leached:**	
Unit:	ug/L	**Date/Time Extracted:**	12/16/08 14:04
QC Batch ID:	8352276	**Date/Time Analyzed:**	12/17/08 03:30
Sample Aliquot:	0.5 mL	**Instrument ID:**	L
Dilution Factor:	10		

CAS No.	Analyte	Conc.	MDL	RL	Q
Q796	Gasoline Range Organics	**3300**	49	250	B

CAS No.	Surrogate	% Rec	Lower Limit	Upper Limit	Q
98-08-8	a,a,a-Trifluorotoluene	90	82	110	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

URS Operating Services

Analysis Data Sheet

Lab Name:	TESTAMERICA DENVER	**Client Sample ID:**	
Lot/SDG Number:	D8L120290	**Lab Sample ID:**	D8L170000-276B
Matrix:	WATER	**Lab WorkOrder:**	K4VNW1AA
% Moisture:		**Date/Time Collected:**	
Basis:	Wet	**Date/Time Received:**	
Analysis Method:	8015B	**Date Leached:**	
Unit:	ug/L	**Date/Time Extracted:**	12/16/08 14:04
QC Batch ID:	8352276	**Date/Time Analyzed:**	12/16/08 17:25
Sample Aliquot:	5 mL	**Instrument ID:**	L
Dilution Factor:	1		

CAS No.	Analyte	Conc.	MDL	RL	Q
Q796	Gasoline Range Organics	5.9	4.9	25	J

CAS No.	Surrogate	% Rec	Lower Limit	Upper Limit	Q
98-08-8	a,a,a-Trifluorotoluene	90	82	110	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

URS Operating Services

Surrogate Recovery Summary

Lab Name: TESTAMERICA DENVER **Extraction** I15KJ01

Lot/SDG Number: D8L120290 **QC Batch ID:** 8352276

Client ID	Work Order	SRG1	SRG2	SRG3	SRG4	SRG5	SRG6	SRG7	SRG8	TOT OUT
LAB MS/MSD MS	K4CQJ1AE	89								0
LAB MS/MSD MSD	K4CQJ1AF	95								0
H2562	K4MD61AA	90								0
INTRA-LAB BLANK	K4VNW1AA	90								0
CHECK SAMPLE	K4VNW1AC	97								0
DUPLICATE CHECK	K4VNW1AD	90								0

Surrogate Number	Surrogate Name	Lower Control Limit	Upper Control Limit
SRG 1	a,a,a-Trifluorotoluene	82	110

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

URS Operating Services

Analysis Data Sheet

Lab Name:	TESTAMERICA DENVER	**Client Sample ID:**	
Lot/SDG Number:	D8L120290	**Lab Sample ID:**	D8L170000-276C
Matrix:	WATER	**Lab WorkOrder:**	K4VNW1AC
% Moisture:	N/A	**Date/Time Collected:**	
Basis:	Wet	**Date/Time Received:**	
Analysis Method:	8015B	**Date Leached:**	
Unit:	ug/L	**Date/Time Extracted:**	12/16/08 14:04
QC Batch ID:	8352276	**Date/Time Analyzed:**	12/16/08 16:05
Sample Aliquot:	5 mL	**Instrument ID:**	L
Dilution Factor:	1		

Analyte	True	Found	%Rec	Q	Limits
Gasoline Range Organics	100	111	111		79 - 149

CAS No.	Surrogate	% Rec	Lower Limit	Upper Limit	Q
98-08-8	a,a,a-Trifluorotoluene	97	82	110	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

URS Operating Services

Analysis Data Sheet

Lab Name:	TESTAMERICA DENVER	**Client Sample ID:**	
Lot/SDG Number:	D8L120290	**Lab Sample ID:**	D8L170000-276L
Matrix:	WATER	**Lab WorkOrder:**	K4VNW1AD
% Moisture:	N/A	**Date/Time Collected:**	
Basis:	Wet	**Date/Time Received:**	
Analysis Method:	8015B	**Date Leached:**	
Unit:	ug/L	**Date/Time Extracted:**	12/16/08 14:04
QC Batch ID:	8352276	**Date/Time Analyzed:**	12/16/08 16:45
Sample Aliquot:	5 mL	**Instrument ID:**	L
Dilution Factor:	1		

Analyte	True	Found	C	% Rec	Q	RPD	Q	QC Limits	
								% Rec	RPD
Gasoline Range Organics	100	98.3		98		12		79 - 149	27

CAS No.	Surrogate	% Rec	Lower Limit	Upper Limit	Q
98-08-8	a,a,a-Trifluorotoluene	90	82	110	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

URS Operating Services

Analysis Data Sheet

Lab Name:	TESTAMERICA DENVER	**Client Sample ID:**	LAB MS/MSD
Lot/SDG Number:	D8L120290	**MS Lab Sample ID:**	D8L090190-006S
Matrix:	WATER	**MS Lab WorkOrder:**	K4CQJ1AE
% Moisture:	N/A	**Date/Time Collected:**	12/04/08 16:00
Basis:	Wet	**Date/Time Received:**	12/09/08 10:00
Analysis Method:	8015B	**Date Leached:**	
Unit:	ug/L	**Date/Time Extracted:**	12/16/08 14:04
QC Batch ID:	8352276	**Date/Time Analyzed:**	12/16/08 22:48
MS Sample Aliquot:	5 mL	**Instrument ID:**	L
MS Dilution Factor:	1		

Analyte	Spike Amount	Sample Result	C	MS Result	C	% Rec	Q	QC Limit
Gasoline Range Organics	100	9.9	J B	115		105		79 - 149

CAS No.	Surrogate	% Rec	Lower Limit	Upper Limit	Q
98-08-8	a,a,a-Trifluorotoluene	89	82	110	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

URS Operating Services

Analysis Data Sheet

Lab Name:	TESTAMERICA DENVER	**Client Sample ID:**	LAB MS/MSD
Lot/SDG Number:	D8L120290	**MSD Lab Sample ID:**	D8L090190-006D
Matrix:	WATER	**MSD Lab WorkOrder:**	K4CQJ1AF
% Moisture:	N/A	**Date/Time Collected:**	12/04/08 16:00
Basis:	Wet	**Date/Time Received:**	12/09/08 10:00
Analysis Method:	8015B	**Date Leached:**	
Unit:	ug/L	**Date/Time Extracted:**	12/16/08 14:04
QC Batch ID:	8352276	**Date/Time Analyzed:**	12/16/08 22:08
MSD Sample Aliquot:	5 mL	**Instrument ID:**	L
MSD Dilution Factor:	1		

Analyte	Spike Amount	Sample Result	C	MSD Result	C	% Rec	Q	RPD	Q	QC Limits	
										% Rec	RPD
Gasoline Range Organics	100	9.9	J B	121		111		4.7		79 - 149	27

CAS No.	Surrogate	% Rec	Lower Limit	Upper Limit	Q
98-08-8	a,a,a-Trifluorotoluene	95	82	110	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

URS Operating Services

Method Blank Summary

Lab Name:	TESTAMERICA DENVER	**Lab File ID:**	128F1301.
Lot/SDG Number:	D8L120290	**Lab Sample ID:**	D8L170000-276B
Matrix:	WATER	**Lab Work Order:**	K4VNW1AA
Analysis Method:	8015B	**Date/Time Extracted:**	12/16/08 14:04
Extraction Method:	I15KJ01	**Date/Time Analyzed:**	12/16/08 17:25
QC Batch ID:	8352276	**Instrument ID:**	L

Client ID	Sample Work Order #	Lab File ID	Date Analyzed	Time Analyzed
LAB MS/MSD MS	K4CQJ1AE S	128F1301.	12/16/08	22:48
LAB MS/MSD MSD	K4CQJ1AF D	127F1201.	12/16/08	22:08
H2562	K4MD61AA	203F2001.	12/17/08	03:30
CHECK SAMPLE	K4VNW1AC C	118F0301.	12/16/08	16:05
DUPLICATE CHECK	K4VNW1AD L	119F0401.	12/16/08	16:45

TestAmerica

INITIAL CALIBRATION DATA

Start Cal Date : 08-OCT-2008 13:37
End Cal Date : 08-OCT-2008 16:55
Quant Method : ESTD
Target Version : 4.14
Integrator : Falcon
Method file : \\DenSvr03\Public\chem\GCV\GC_L.i\100808B1.B\8015.m
Last Edit : 09-Oct-2008 05:34 reamb

Calibration File Names:
Level 1: \\DenSvr03\Public\chem\GCV\GC_L.i\100808B1.B\109F0201.D
Level 2: \\DenSvr03\Public\chem\GCV\GC_L.i\100808B1.B\110F0301.D
Level 3: \\DenSvr03\Public\chem\GCV\GC_L.i\100808B1.B\112F0401.D
Level 4: \\DenSvr03\Public\chem\GCV\GC_L.i\100808B1.B\113F0501.D
Level 5: \\DenSvr03\Public\chem\GCV\GC_L.i\100808B1.B\114F0601.D
Level 6: \\DenSvr03\Public\chem\GCV\GC_L.i\100808B1.B\115F0701.D

Compound	20.0000 Level 1	50.0000 Level 2	100.0000 Level 3	200.0000 Level 4	500.0000 Level 5	1000.0000 Level 6	Curve	Coefficients b	m1	m2	%RSD or R^2	
S 3 GRO - C6 to C10	6938	6202	5508	6109	6133	5928	AVRG		6136		7.59668	
S 163 GRO - C6 to C12	+++++	+++++	+++++	+++++	+++++	+++++	AVRG		0.000e+000		0.000e+000	<-
4 1-Chloro-4-Fluorobenzene	27658	63737	100575	223142	571036	1136104	WLINR	-0.77061	7319		0.99315	AM? 2
$ 1 Chlorobenzene	35392	80603	127073	284269	729054	1451923	WLINR	-0.77961	9311		0.99269	AM? 2
$ 2 Trifluorotoluene	29421	67897	110605	237343	605166	1184705	WLINR	-0.79995	7764		0.99556	AM? v

10/11/08

TestAmerica

INITIAL CALIBRATION DATA

Start Cal Date : 08-OCT-2008 13:37
End Cal Date : 08-OCT-2008 16:55
Quant Method : ESTD
Target Version : 4.14
Integrator : Falcon
Method file : \\DenSvr03\Public\chem\GCV\GC_L.i\100808B1.B\8015.m
Last Edit : 09-Oct-2008 05:34 reamb

Curve	Formula	Units
Averaged	Amt = Rsp/ml	Response
Wt Linear	Amt = b + Rsp/ml	Response

10/9

Report Date: 09-Oct-2008 06:55

Calibration History

Method : \\DenSvr03\Public\chem\GCV\GC_L.i\100808B1.B\8015.m
Start Cal Date: 08-OCT-2008 13:37
End Cal Date : 08-OCT-2008 16:55
Last Cal Level: 6
Last Cal Type : Continuing Calibration

Initial Calibration

Injection Date	Sublist	Calibration File
Cal Level: 1 , Cal Amount: 20.00000		
08-OCT-2008 13:37	GRO.A.01	\\DenSvr03\Public\chem\GCV\GC_L.i\100808B1.B\109F0201.D
Cal Level: 2 , Cal Amount: 50.00000		
08-OCT-2008 14:16	GRO.A.01	\\DenSvr03\Public\chem\GCV\GC_L.i\100808B1.B\110F0301.D
Cal Level: 3 , Cal Amount: 100.00000		
08-OCT-2008 14:56	GRO.A.01	\\DenSvr03\Public\chem\GCV\GC_L.i\100808B1.B\112F0401.D
Cal Level: 4 , Cal Amount: 200.00000		
08-OCT-2008 15:36	GRO.A.01	\\DenSvr03\Public\chem\GCV\GC_L.i\100808B1.B\113F0501.D
Cal Level: 5 , Cal Amount: 500.00000		
08-OCT-2008 16:15	GRO.A.01	\\DenSvr03\Public\chem\GCV\GC_L.i\100808B1.B\114F0601.D
Cal Level: 6 , Cal Amount: 1000.00000		
08-OCT-2008 16:55	GRO.A.01	\\DenSvr03\Public\chem\GCV\GC_L.i\100808B1.B\115F0701.D

Continuing Calibration
Ccal Level Mode: GLOBAL LEVEL 4

09-OCT-2008 02:08	GRO.A.01	\\DenSvr03\Public\chem\GCV\GC_L.i\100808B1.B\129F2101.D
08-OCT-2008 15:36	GRO.A.01	\\DenSvr03\Public\chem\GCV\GC_L.i\100808B1.B\113F0501.D

TestAmerica

RECOVERY REPORT

Client Name: TEC
Client SDG: SDGa04696
Sample Matrix: LIQUID
Fraction: VOA
Lab Smp Id: ICV/LCS #0337-08
Level: LOW
Operator: AP/PQ
Data Type: GC DATA
SampleType: LCS
SpikeList File: GRO.A.01.spk
Quant Type: ESTD
Sublist File: GRO.A.01.sub
Method File: \\DenSvr03\Public\chem\GCV\GC_L.i\100808B1.B\8015.m
Misc Info:

SPIKE COMPOUND	CONC ADDED ug/L	CONC RECOVERED ug/L	% RECOVERED	LIMITS
S 3 GRO - C6 to C10	100.000	100.060	100.06	79-149

SURROGATE COMPOUND	CONC ADDED ug/L	CONC RECOVERED ug/L	% RECOVERED	LIMITS
$ 2 Trifluorotoluene	30.0000	30.9112	103.04	82-110
$ 1 Chlorobenzene	30.0000	31.3204	104.40	74-138

Data File: \\DenSvr03\Public\chem\GCV\GC_L.i\121608B1.B/117F0201.D
Report Date: 12/17/2008

CONTINUING CALIBRATION COMPOUNDS
PERCENT DRIFT REPORT

Instrument ID: GC_L.i
Lab File ID: 117F0201.D
Analysis Type: WATER

Injection Date: 16-DEC-2008 14:44
Lab Sample ID: CCV #0430-08
Method File: \\DenSvr03\Public\chem\GCV\GC_L.i\12160

COMPOUND	EXPECTED CONC.	MEASURED CONC.	%D	MAX %D
0 Trifluorotoluene	30.0000	27.3735	8.8	15.0
139 GRO - C6 to C10	200.0000	187.0418	6.5	15.0
139 1-Chloro-4-Fluorobenzene	30.0000	28.2347	5.9	15.0
162 Chlorobenzene	30.0000	29.3581	2.1	15.0

Average %D = 5.81

Data File: \\DenSvr03\Public\chem\GCV\GC_L.i\121608B1.B/131F1601.D
Report Date: 12/17/2008

CONTINUING CALIBRATION COMPOUNDS
PERCENT DRIFT REPORT

Instrument ID: GC_L.i
Lab File ID: 131F1601.D
Analysis Type: WATER

Injection Date: 17-DEC-2008 00:49
Lab Sample ID: CCV #0430-08
Method File: \\DenSvr03\Public\chem\GCV\GC_L.i\12160

COMPOUND	EXPECTED CONC.	MEASURED CONC.	%D	MAX %D
0 Trifluorotoluene	30.0000	27.5857	8.0	15.0
139 GRO - C6 to C10	200.0000	196.1859	1.9	15.0
139 1-Chloro-4-Fluorobenzene	30.0000	29.2976	2.3	15.0
162 Chlorobenzene	30.0000	30.5601	1.9	15.0

Average %D = 3.54

Data File: \\DenSvr03\Public\chem\GCV\GC_L.i\121608B1.B/205F2201.D
Report Date: 12/17/2008

CONTINUING CALIBRATION COMPOUNDS
PERCENT DRIFT REPORT

Instrument ID: GC_L.i
Lab File ID: 205F2201.D
Analysis Type: WATER

Injection Date: 17-DEC-2008 04:51
Lab Sample ID: CCV #0430-08
Method File: \\DenSvr03\Public\chem\GCV\GC_L.i\12160

COMPOUND	EXPECTED CONC.	MEASURED CONC.	%D	MAX %D
0 Trifluorotoluene	30.0000	28.0257	6.6	15.0
139 GRO - C6 to C10	200.0000	213.3928	6.7	15.0
139 1-Chloro-4-Fluorobenzene	30.0000	29.3988	2.0	15.0
162 Chlorobenzene	30.0000	30.8932	3.0	15.0

Average %D = 4.56

Sequence: C:\HPCHEM\1\SEQUENCE\L100808B.S

Sequence Table (Front Injector):

Quantification Part:

Line	Location	SampleName	SampleAmount	ISTDAmt	Multiplier	Dilution
1	Vial 108	RT #0367-08				
2	Vial 109	L1(20) #0377-08				
3	Vial 110	L2(50) #0377-08				
4	Vial 112	L3(100) #0377-08				
5	Vial 113	L4(200) #0377-08				
6	Vial 114	L5(500) #0377-08				
7	Vial 115	L6(1000)#0377-08				
8	Vial 116	RINSE				
9	Vial 117	ICV/LCS #0337-08				
10	Vial 118	LCSD #0337-08				
11	Vial 119	MB #0365-08				
12	Vial 120	KX7TF1AC,168-1				
13	Vial 121	KX7TH1AN,168-2				
14	Vial 122	KX7TH1AN,168-2S				
15	Vial 123	KX7TH1AN,168-2D				
16	Vial 124	KX7TJ1AN,168-3				
17	Vial 125	KX7TK1AN,168-4				
18	Vial 126	KX7TL1AN,168-5				
19	Vial 127	KX7TM1AN,168-6				
20	Vial 128	KX7TN1AN,168-7				
21	Vial 129	CCV #0368-08				

pH=7

pH<2 unless noted

Sequence Table (Back Injector):

No entries - empty table!

828066

Sequence: C:\HPCHEM\1\SEQUENCE\L121608B.S

110296
110306
110219
120290

Sequence Table (Front Injector):

Quantification Part:

Line	Location	SampleName	SampleAmount	ISTDAmt	Multiplier	Dilution
1	Vial 116	RT #0445-08				
2	Vial 117	CCV #0430-08				
3	Vial 118	LCS #0425-08				
4	Vial 119	LCSD #0425-08				
5	Vial 120	MB #0449-08				
6	Vial 121	K4CPG1AA,190-1				
7	Vial 122	K4CP31AA,190-2				
8	Vial 123	K4CP61AA,190-3				
9	Vial 124	K4CP91AA,190-4				
10	Vial 125	K4CQF1AA,190-5				
11	Vial 126	K4CQJ1AA,190-6				
12	Vial 127	K4CQJ1AF,190-6S				
13	Vial 128	K4CQJ1AE,190-6D				
14	Vial 129	K4CQN1AA,190-7				
15	Vial 130	K4JCW1AA,296-1				
16	Vial 131	CCV #0430-08				
17	Vial 132	K4JF11AA,306-1				
18	Vial 201	K4HG31AD,219-1 - RE-DNR				
19	Vial 202	K4HHL1AD,219-2 - RE DNR conf			500	0.01
20	Vial 203	K4MD61AA,290-1			10	0.5
21	Vial 204	RT #0445-08				
22	Vial 205	CCV #0430-08				
23	Vial 206	K4HG31AD,219-1 pH=7			500	0.01
24	Vial 207	K4HHL1AD,219-2			500	0.01
25	Vial 208	K4HHL1AD,219-2 - DNR			1000	0.001
26	Vial 209	CCV #0430-08				

8352276

all pH < 2 unless noted

Sequence Table (Back Injector):

No entries - empty table!

Appendix F

Laboratory Analytical Results for New Howe Well

Chemtech-Ford Laboratories

Certificate of Analysis

Lab No.: 08 06426
Lab Group No.: 90733

Name:	Murray City	***Sample Date:***	5/23/2008 11:15 AM
Sample Site:	WS024 New Howe Well	***Receipt Date:***	5/23/2008 11:11 AM
Sample ID:	08 06426	***Sampler:***	HENDERSON
System No:	18024	***Sample Source:***	
Sample Type:	Drinking Water	***Project:***	

Parameter	Sample Result	Mimimum Reporting Limit	Units	Method	Analysis Date	Analysis Time	Analyst Initials	Flag
Group P - Volatile Organic Compounds								
1,1,1,2-Tetrachloroethane	ND	1	ug/L	EPA 524.2	5/29/2008	10:17	RB	
1,1,1-Trichloroethane	ND	0.5	ug/L	EPA 524.2	5/29/2008	10:17	RB	
1,1,2,2-Tetrachloroethane	ND	1	ug/L	EPA 524.2	5/29/2008	10:17	RB	
1,1,2-Trichloroethane	ND	0.5	ug/L	EPA 524.2	5/29/2008	10:17	RB	
1,1,2-Trichlorotrifluoroethane	ND	1	ug/L	EPA 524.2	5/29/2008	10:17	RB	
1,1-Dichloroethane	ND	1	ug/L	EPA 524.2	5/29/2008	10:17	RB	
1,1-Dichloroethylene	ND	0.5	ug/L	EPA 524.2	5/29/2008	10:17	RB	
1,1-Dichloropropene	ND	1	ug/L	EPA 524.2	5/29/2008	10:17	RB	
1,2,3-Trichlorobenzene	ND	1	ug/L	EPA 524.2	5/29/2008	10:17	RB	
1,2,3-Trichloropropane	ND	1	ug/L	EPA 524.2	5/29/2008	10:17	RB	
1,2,4-Trichlorobenzene	ND	0.5	ug/L	EPA 524.2	5/29/2008	10:17	RB	
1,2,4-Trimethylbenzene	ND	1	ug/L	EPA 524.2	5/29/2008	10:17	RB	
1,2-Dichlorobenzene	ND	0.5	ug/L	EPA 524.2	5/29/2008	10:17	RB	
1,2-Dichloroethane	ND	0.5	ug/L	EPA 524.2	5/29/2008	10:17	RB	
1,2-Dichloropropane	ND	0.5	ug/L	EPA 524.2	5/29/2008	10:17	RB	
1,3,5-Trimethylbenzene	ND	1	ug/L	EPA 524.2	5/29/2008	10:17	RB	
1,3-Dichlorobenzene	ND	1	ug/L	EPA 524.2	5/29/2008	10:17	RB	
1,3-Dichloropropane	ND	1	ug/L	EPA 524.2	5/29/2008	10:17	RB	
1,4-Dichlorobenzene	ND	0.5	ug/L	EPA 524.2	5/29/2008	10:17	RB	
2,2-Dichloropropane	ND	1	ug/L	EPA 524.2	5/29/2008	10:17	RB	
2-Chlorotoluene	ND	1	ug/L	EPA 524.2	5/29/2008	10:17	RB	
4-Chlorotoluene	ND	1	ug/L	EPA 524.2	5/29/2008	10:17	RB	
4-Isopropyltoluene	ND	1	ug/L	EPA 524.2	5/29/2008	10:17	RB	
Benzene	ND	0.5	ug/L	EPA 524.2	5/29/2008	10:17	RB	
Bromobenzene	ND	1	ug/L	EPA 524.2	5/29/2008	10:17	RB	
Bromochloromethane	ND	1	ug/L	EPA 524.2	5/29/2008	10:17	RB	
Bromodichloromethane	ND	0.5	ug/L	EPA 524.2	5/29/2008	10:17	RB	
Bromoform	ND	0.5	ug/L	EPA 524.2	5/29/2008	10:17	RB	
Bromomethane	ND	1	ug/L	EPA 524.2	5/29/2008	10:17	RB	
Carbon Tetrachloride	ND	0.5	ug/L	EPA 524.2	5/29/2008	10:17	RB	
Chlorobenzene	ND	0.5	ug/L	EPA 524.2	5/29/2008	10:17	RB	
Chloroethane	ND	1	ug/L	EPA 524.2	5/29/2008	10:17	RB	

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Chemtech-Ford Laboratories

Certificate of Analysis

Lab No.: 08 06426
Lab Group No.: 90733

Name:	Murray City	***Sample Date:***	5/23/2008 11:15 AM
Sample Site:	WS024 New Howe Well	***Receipt Date:***	5/23/2008 11:11 AM
Sample ID:	08 06426	***Sampler:***	HENDERSON
System No:	18024	***Sample Source:***	
Sample Type:	Drinking Water	***Project:***	

Parameter	Sample Result	Mimimum Reporting Limit	Units	Method	Analysis Date	Analysis Time	Analyst Initials	Flag
Group P - Volatile Organic Compounds								
Chloroform	ND	0.5	ug/L	EPA 524.2	5/29/2008	10:17	RB	
Chloromethane	ND	1	ug/L	EPA 524.2	5/29/2008	10:17	RB	
cis 1,3-Dichloropropylene	ND	1	ug/L	EPA 524.2	5/29/2008	10:17	RB	
cis-1,2,-Dichloroethylene	ND	0.5	ug/L	EPA 524.2	5/29/2008	10:17	RB	
Dibromochloromethane	ND	0.5	ug/L	EPA 524.2	5/29/2008	10:17	RB	
Dibromomethane	ND	1	ug/L	EPA 524.2	5/29/2008	10:17	RB	
Dichlorodifluoromethane	ND	1	ug/L	EPA 524.2	5/29/2008	10:17	RB	
Ethylbenzene	ND	0.5	ug/L	EPA 524.2	5/29/2008	10:17	RB	
Hexachlorobutadiene	ND	1	ug/L	EPA 524.2	5/29/2008	10:17	RB	
Isopropylbenzene	ND	1	ug/L	EPA 524.2	5/29/2008	10:17	RB	
Methylene Chloride	ND	0.5	ug/L	EPA 524.2	5/29/2008	10:17	RB	
MTBE	ND	1	ug/L	EPA 524.2	5/29/2008	10:17	RB	
Naphthalene	ND	1	ug/L	EPA 524.2	5/29/2008	10:17	RB	
n-Butylbenzene	ND	1	ug/L	EPA 524.2	5/29/2008	10:17	RB	
n-Propylbenzene	ND	1	ug/L	EPA 524.2	5/29/2008	10:17	RB	
sec-Butylbenzene	ND	1	ug/L	EPA 524.2	5/29/2008	10:17	RB	
Styrene	ND	0.5	ug/L	EPA 524.2	5/29/2008	10:17	RB	
tert-Butylbenzene	ND	1	ug/L	EPA 524.2	5/29/2008	10:17	RB	
Tetrachloroethylene	ND	0.5	ug/L	EPA 524.2	5/29/2008	10:17	RB	
Toluene	ND	0.5	ug/L	EPA 524.2	5/29/2008	10:17	RB	
trans-1,2-Dichloroethylene	ND	0.5	ug/L	EPA 524.2	5/29/2008	10:17	RB	
trans-1,3 Dichloropropylene	ND	1	ug/L	EPA 524.2	5/29/2008	10:17	RB	
Trichloroethylene	ND	0.5	ug/L	EPA 524.2	5/29/2008	10:17	RB	
Trichlorofluoromethane	ND	1	ug/L	EPA 524.2	5/29/2008	10:17	RB	
Vinyl Chloride	ND	0.5	ug/L	EPA 524.2	5/29/2008	10:17	RB	
Xylene - Total	ND	0.5	ug/L	EPA 524.2	5/29/2008	10:17	RB	

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Certificate of Analysis

Lab No.: 08 06426
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Name:	Murray City	***Sample Date:***	5/23/2008 11:15 AM
Sample Site:	WS024 New Howe Well	***Receipt Date:***	5/23/2008 11:11 AM
Sample ID:	08 06426	***Sampler:***	HENDERSON
System No:	18024	***Sample Source:***	
Sample Type:	Drinking Water	***Project:***	

Parameter	Sample Result	Mimimum Reporting Limit	Units	Method	Analysis Date	Analysis Time	Analyst Initials	Flag
Group A - Inorganic								
Cyanide, Total	ND	0.002	mg/L	ASTM D2036	6/3/2008	10:00	PNM	
Fluoride, IC	0.3	0.1	mg/L	EPA 300.0	5/23/2008	16:00	TSM	
Nitrate as N, IC	0.2	0.1	mg/L	EPA 300.0	5/23/2008	16:00	TSM	
Solids, Total Dissolved (TDS)	235	5	mg/L	SM 2540C	5/28/2008	20:15	JSH	
Sulfate, IC	70	1	mg/L	EPA 300.0	5/23/2008	16:00	TSM	
Turbidity	0.20	0.02	NTU	EPA 180.1	5/23/2008	16:00	JSH	
Group B - Metals								
Antimony, Total, ICP/MS	ND	0.0005	mg/L	EPA 200.8	5/28/2008	13:40	MJB	
Arsenic, Total, ICP/MS	0.0026	0.0005	mg/L	EPA 200.8	5/28/2008	13:40	MJB	
Barium, Total, ICP	0.036	0.005	mg/L	EPA 200.7	5/27/2008	14:48	MJB	
Beryllium, Total, ICP	ND	0.001	mg/L	EPA 200.7	5/27/2008	14:48	MJB	
Cadmium, Total, ICP/MS	ND	0.0005	mg/L	EPA 200.8	5/28/2008	13:40	MJB	
Chromium, Total, ICP/MS	0.0025	0.0005	mg/L	EPA 200.8	5/28/2008	13:40	MJB	
Copper, Total, ICP/MS	0.001	0.001	mg/L	EPA 200.8	5/28/2008	13:40	MJB	
Lead, Total, ICP/MS	ND	0.0005	mg/L	EPA 200.8	5/28/2008	13:40	MJB	
Mercury, Total, ICP/MS	ND	0.0002	mg/L	EPA 200.8	5/28/2008	13:40	MJB	
Nickel, Total, ICP/MS	0.0015	0.0005	mg/L	EPA 200.8	5/28/2008	13:40	MJB	
Selenium, Total, ICP/MS	0.0008	0.0005	mg/L	EPA 200.8	5/28/2008	13:40	MJB	
Sodium, Total, ICP	32.6	0.5	mg/L	EPA 200.7	5/27/2008	14:48	MJB	
Thallium, Total, ICP/MS	ND	0.0005	mg/L	EPA 200.8	5/28/2008	13:40	MJB	H
Group E - Radiochemicals								
Gross Alpha	1.9		pCi/L	EPA 900.0	6/5/2008	14:30	UL	O
Gross Alpha LLD	3.0		pCi/L	EPA 900.0	6/5/2008	14:30	UL	O
Gross Alpha Variance	1.0		pCi/L	EPA 900.0	6/5/2008	14:30	UL	O
Gross Beta	2.5		pCi/L	EPA 900.0	6/5/2008	14:30	UL	O
Gross Beta LLD	4.0		pCi/L	EPA 900.0	6/5/2008	14:30	UL	O
Gross Beta Variance	1.2		pCi/L	EPA 900.0	6/5/2008	14:30	UL	O
Radium 228	0.6		pCi/L	EPA 904.0	6/20/2008	13:22	UL	O
Radium 228 LLD	1.0		pCi/L	EPA 904.0	6/20/2008	13:22	UL	O
Radium 228 Variance	0.5		pCi/L	EPA 904.0	6/20/2008	13:22	UL	O

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